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Run
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Maximum Match 100%
Listing first 45 summaries
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Maximum DB
                                                                                                                                                                                                                                                                                                                    Total number of hits satisfying chosen parameters:
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                                                                                                                                                                                               Database
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Gapop 10.0 , Gapext 0.5
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200
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GenCore version 4.5 Copyright (c) 1993 - 2000 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                      ANSFLXXLRHgSLXRXCIXX.....XXAKXIFQNVDDTLAFWSKH
                                                                   sp_phage: *
                                                                                                                                                             sp_archea:*
sp_bacteria:*
                                                                              sp_organelle:*
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sp_mammal:*
                                                                                                                                      sp_human:*
                                                                                                                                                   sp_fung1:*
sp_virus:*
           sp_unclassified:*
sp_vertebrate:*
                                       sp_rodent:*
                                                    sp_plant:*
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268.888 Million cell updates/sec
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

19	18	17	16	15	14	13	12	11	10		- 00	7	6	. U	4		· N.	,		Result
64	65.5	68	74	75	77	79	80	08	8.2	82	85	89	16	91	93	105	130	158		Score
32.0	32.8	34.0	37.0	37.5	38.5	39.5	40.0	40.0	41.0	41.0	42.5	44.5	45.5	45.5	46.5	52.5	65.0	79.0		Query
25	422	809	607	648	456	138	446	100	650	650	469	218	481	481	444	482	459	456	*	Query Match Length
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990vH6	Q15213	Q9PTW7	091001	Q29094	Q14316	028994	Q61109	Q15253	Q9NSD0	Q16519	Q9GMD9	014668	088947	054740	Q14339	Q63207	Q9GLP2	Q9TTR0		Ħ
Q9qvh6 rattus sp.	Q15213 homo sapien	Q9ptw7 struthio ca	Q91001 gallus gall	Q29094 sus scrofa	Q14316 homo sapien	Q28994 sus scrofa	Q61109 mus musculu	Q15253 homo sapien	Q9nsd0 homo sapien	Q16519 homo sapien	Q9gmd9 ornithorhyn		O88947 mus musculu	O54740 mus musculu	Q14339 homo sapien	Q63207 rattus norv	Q9g1p2 sus scrofa	Q9ttr0 canis famil		Description

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	47	47	47	47	47.5	47.5	47.5	47.5	48	48.5	.48.5	48.5	48.5	49.5	49.5	49.5	50	50.5	51	51.5	52	56	60	61	62	63
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-	homo	homo	Q9ug06 homo sapien	o		Q9mb23 arabidopsis	Q9se23 oryza sativ	0		Q9uv56 emericella	m		004284 selaqinella	Q9xf36 medicago sa	7		Q91u67 arabidopsis	Q9se22 oryza sativ	Q9uc55 homo sapien	Q9s1q9 arabidopsis	homo	O14669 homo sapien	7		mus muscu	P82807 notechis sc

## ALIGNMENTS

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InterPro; IPR000561; ...
InterPro; IPR001254; ...
InterPro; IPR001314; ...
InterPro; IPR001881; ...
InterPro; IPR002881; ...
InterPro; IPR002283; ...
Pfam; PF000008; EGF; 2.
Pfam; PF00089; trypsin; 1.
Pfam; PF0072; CHYMOTRYPSI
PRINTS; PR00701; GLABLOOD.
                                                                                                                                                                                    SEQUENCE FROM N.A.

MEDILINE-99371952; PubMed=10443005;

Leeb T., Pfeiffer I., Kopp T., Deppe A., Brenig B.;

Leeb T., Pfeiffer I., Kopp T., Deppe A., Brenig B.;

"Analysis of canine protein C gene polymorphisms.";

Anim. Genet. 30:337-238(1999).

-!- SIMILARITY: TO SERINE PROTEASES, TRYPSIN FAMILY.

-!- SIMILARITY: TO CHYMOTRYPSIN SERINE PROTEASE FAMILY (S1).
                                                                                                                                                                                                                                                                                                                                        Leeb T., Ko
Brenig B.;
                                                                                                                                                                                                                                                                                                                                                                                          Canis familiaris (Dog).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Mammalia; Eutheria; Carnivora; Fissipedia; Canidae;
NCBI_TaxID=9615;
                                                                                                                                                                                                                                                                                             "Molecular characterization and chromosomal assignment of the canine protein C gene.";
Mamm. Genome 10:135-139(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-MAY-2000 (Tremblrel. 01-MAY-2000 (Tremblrel. 01-MAR-2001 (Tremblrel. PROTEIN C PRECURSOR.
                                                                                                                                                             EMBL; AJ001979; CAA05126.1;
HSSP; P04070; 1PCU.
                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM
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                                                                                                                                    InterPro; IPR000152; -. InterPro; IPR000294; -.
                                                                                                                                                                                                                                                                                                                                                    Kopp T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
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              CHYMOTRYPSIN.
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16,
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Last sequence update)
Last annotation update)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
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Canis.
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RESULT
Q63207
ID Q0
AC Q0
DT 00
DT 0
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Matches 30
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Best Local S
Matches 25
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SIGNAL 1 42 POTENTIAL.
CHAIN 193 194 PROTEIN C LICE CHAIN 193 194 PROTEIN C COTT CHAIN 195 456 PROTEIN C HE TOTAL CHAIN 195 456 AA; 50813 MW; 7ADJARSCIC3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROSITE; PS00010; ASX_HYDROXYL; 1.

PROSITE: PS00022; EGF_1; UNKNOWN_1.

PROSITE; PS01187; EGF_2; 2.

PROSITE; PS01187; EGF_CA; 1.

PROSITE; PS00011; GLU_CARBOXYLATION; 1.

PROSITE; PS00134; TRYPSIN_HIS; UNKNOWN_1.

PROSITE; PS00135; TRYPSIN_SER; 1.

SMART; SM0181; EGF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       f.
                                                                                                                                                                 01-NOV-1996
01-NOV-1996
01-MAR-2001
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01-MAR-2001
01-MAR-2001
                                                                                                                                                                                                                                Q63207;
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                                                          Eukaryota; Metazoa;
Mammalia; Eutheria;
NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein C.";
Submitted (OCT-1999) to the EMBL/GenBank/DDBJ EMBL; AF191307; AAG28380.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa;
Mammalia; Eutheria;
NCBI_TaxID=9823;
  SEQUENCE FROM N.A.
STRAIN=SPRAGUE-DAWLEY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Grimm D.R., Colter M.B., "Cloning of the complete
                                                                                                                        Rattus norvegicus (Rat).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TISSUE-LIVER;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sus scrofa (Pig).
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30; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                              25; Conservative
                                                                                                                                                                 6 (TrEMBLrel. 01, 6 (TrEMBLrel. 01, 11) (TrEMBLrel. 16,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  459 AA;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EGF-like domain; Glycoprotein; Hydrolase;
epeat; Serine protease; Signal.
                                                                                   Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Chordata; Craniata; Vertebrata; Cetartiodactyla; Suina; Suidae;
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51866 MW;
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68.2%;
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16,
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cDNA sequences ehcoding
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Last annotation update)
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Last annotation updat
                                                                                                                                                                                                               Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 130; DB 6
Pred. No. 4e-14;
5; Mismatches
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Pred. No. 5
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PROTEIN C CONNECTING DIPEPTIDE.
PROTEIN C HEAVY CHAIN.
7ADJABC1C34E59FF CRC64;
                                                                                   Craniata; Vert
Sciurognathi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
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Suina; Suidae; Sus.
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                                                                                                        Vertebrata;
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R Pfam; PF00089; trypsin; 1.

R Pfam; PF00089; trypsin; 1.

R Pfam; PF00089; trypsin; 1.

R PF100594; dla; 1.

R PRINTS; PR00722; CHYMOTRYPSIN.

R PRINTS; PR00722; EGF_1; UNKNOWN_1.

R PROSITE; PS00022; EGF_1; UNKNOWN_1.

R PROSITE; PS01186; EGF_2; 2.

R PROSITE; PS01187; EGF_CA; 1.

R PROSITE; PS00113; TRYPSIN_HIS; UNKNOWN_1.

R PROSITE; PS00134; TRYPSIN_HIS; UNKNOWN_1.

R PROSITE; PS00135; TRYPSIN_SER; 1.

R PROSITE; PS00136; EGF-11ke domain; Glycoprotein; Hydrolase; UNKNOWN_1.

R PROSITE; PS00136; Repeat; Serine protease.

SEQUENCE 482 AA; 54265 MW; 0284678E3954A698 CRC64;
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Interpro; IPR000294; -
Interpro; IPR000561; -
Interpro; IPR000742; -
Interpro; IPR00154; -
Interpro; IPR001314; -
Interpro; IPR001881; -
Interpro; IPR001383; -
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Q14339;
Q1-NOV-1996
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Woodbury R.G., Hart C.E.,
Davie E.W.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE=96093366; PubMed=8578539;
Stanton C., Ross R.P., Hutson S.,
"Evidence for competition between
for intracellular processing by the
                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens (Human
Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-NOV-1996
01-MAR-2001
                      "Characterization of a cDNA coding for human fac proc. Natl. Acad. Sci. U.S.A. 83:2412-2416(1986) -i- SIMILARITY: TO SERINE PROTEASES, TRYPSIN FAM. -i- SIMILARITY: TO CHYMOTRYPSIN SERINE PROTEASE EMBL; M13232; AAA88041.1; -
HSSP; P08709; 1BF9.
InterPro; IPR000152; -
                                                                                                                                                                                                                                             MEDLINE=86205965; PubMed=3486420;
Hagen F.S., Gray C.L., O'Hara P.J.,
                                                                                                                                                                                                                                                                                                TISSUE=LIVER
                                                                                                                                                                                                                                                                                                                                                                    Mammalia; Euther NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PREPROFACTOR
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                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                41
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17; Conserv
                                                                                                                                                                                                                                                                                                                                                                                              Eutheria;
     IPR000294;
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(TrEMBLrel. 01, Last sequence update)
(TrEMBLrel. 16, Last annotation updat
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                                                                                                                                                                                                                                                                                                                                                                                                                                           (Human)
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                                                                                                                                                                                                                                                                                                                                                                                                                  Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                Primates;
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38.6%;
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lon between vitamin K-dependent clotting
essing by the vitamin K-dependent gamma-
                                                                                                                                                                                                                       Insley M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 105;
Pred. No. 8.
                                                                                                                                                                                                                                                                                                                                                                                           Craniata; Vertebrata; Catarrhini; Hominidae,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                Grant
                                                                                                                                                                                                                       Grant F.J.,
Kisiel W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            444
                                                                                                       PROTEASE FAMILY
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.9e-10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A
                                                                                                                                                                                                                                                                                                                                                                                                Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                                                                                         factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16;
                                                                                                                                                                                                                         Saari G.
Kurachi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              44
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                       Euteleostomi;
                                                                                                                                                                                                                       ۲.
۲.
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RESULT
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DR Interpro; IPR001254; -...

NR Interpro; IPR001314; -...

R Interpro; IPR001881; -...

R Pfam; PF00008; EGF; 2...

Pfam; PF00089; trypsin; 1...

PRINTS; PR00722: .....

PRINTS; PR00722: .....
                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 19
                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
CHAIN
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRINTS; PRO0722; CHYMOTRYPSIN.

PRINTS; PRO0001; GLABLOOD.

PROSITE; PSO00010; ASX_HYDROXYL; UNKNOWN_1.

PROSITE; PSO0010; ASX_HYDROXYL; UNKNOWN_1.

PROSITE; PS01186; EGF_1; UNKNOWN_1.

PROSITE; PS01187; EGF_2; 1.

PROSITE; PS01187; EGF_2; 1.

PROSITE; PS01134; TRYPSIN_HIS; UNKNOWN_1.

PROSITE; PS000135; TRYPSIN_HIS; UNKNOWN_1.

PROSITE; PS000135; TRYPSIN_HIS; UNKNOWN_1.

PROSITE; PS000136; TRYPSIN_SER; 1.

SMART; SM00020; TTYP_SPC; 1.

Calcium-binding; EGF-11ke domain; Glycoprotein; Hydrolase; Repeat; Stgrine protease; Signal.

DOTERTIAL
                                                    InterPro;
InterPro;
                                                                      InterPro;
InterPro;
                                                                                         InterPro;
InterPro;
                                                                                                                  PRINTS;
                                                                                                                                                                                                            Eukaryota; Metazoa;
Mammalia; Eutheria;
NCBI_TaxID=10090;
                                                                                                                                                                                                                                                         01-JUN-1998 (TrEMBLrel.
01-JUN-1998 (TrEMBLrel.
01-MAR-2001 (TrEMBLrel.
COAGULATION FACTOR X PRE
                                                                                                                                                                                           SEQUENCE
                  Pfam;
                                            InterPro;
                                                                                                                                                                                   SEQUENCE FROM
TISSUE-LIVER;
                                                                                                                                                                                                                                        Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                054740;
                                                                                                                                                                                                                                                                                                         054740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SIGNAL
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                                                                                                           InterPro;
                                                                                                                                                                                                                                                                                                                                                     99
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    ANAFLEELRPGSLERECKEEQCSFEEAREIFKDAERTKLFW
                                                                                                                                                                                                                                                                                                                                                                                       ch 46.5%;
l Similarity 46.3%;
l9; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                      444
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191
                                                                                                                                                                                                                                                                                                         PRELIMINARY;
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       CHYMOTRYPSIN.
GLABLOOD
                                                                                                                                                                                                                      Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                      49320
                                                                                                                                                                                                                                                        al. 06, Created)
el. 06, Last sequence update)
el. 16, Last annotation update
PRECURSOR (EC 3.4.21.6).
                                                                                                                                                                                                                                                                                                                                                                                                                                      X.
                                                                                                                                                                                                                                                                                                                                                                                                                                    POTENTIAL.
POTENTIAL.
COAGULATION FACTOR V
COAGULATION FACTOR V
COAGULATION FACTOR V
2E74EAFD2FADF2A4
                                                                                                                                                                                                                                                                                                                                                                                       Score 93; DB Pred. No. 9.6e 5; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                        5.
                                                                                                                                                                                                                      Craniata; Vertebrata; I
Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                         481
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                                                                                                                                                                                                                                                                  update)
                                                                                                                                                                                                                                                                                                                                                     79
                                                                                                                                                                                                                                                                                                                                                                                                          Length 444;
                                                                                                                                                                                                                                                                                                                                                                                                                                    VII.
VII.
CRC64;
                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                               Euteleostomi;
                                                                                                                                                                                                                       Murinae;
                                                                                                                                                                                                                                                                                                                                                                                        0;
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RESULT
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Best Local S
Matches 15
Thrombing the Colling Colling Religion of Colling Factor and Colling F
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CHAIN
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               088947;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SMART; SM00001; EGF_like;
Calcium-binding; EGF-like
Serine protease; Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
STRAIX-C5784 X CBA; TISSUE-LIVER;
MEDLINE-98347933; PubMed-9684791;
Liang Z., Cooper A., DeFord M.E.,
Castellino F.J., Rosen E.D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mus musculus (Mouse).
Eukaryota; Metazoa; C
Mammalia; Eutheria; R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-NOV-1998
01-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PROSITE; PS00010; ASX_HYDROXYL; UNKNOWN_1.
PROSITE; PS00022; EGF_1; UNKNOWN_1.
PROSITE; PS01186; EGF_2; 2.
PROSITE; PS01187; EGF_CA; 1.
PROSITE; PS00011; GLU_CARBOXYLATION; 1.
PROSITE; PS00134; TRYPSIN_HIS; UNKNOWN_1.
PROSITE; PS00135; TRYPSIN_SER; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                    Cooper A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN-129SJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Cloning and characterization of
factor X.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COAGULATION
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                                                                                                                                                                                                                                                                                                                                                                                                              "Cloning
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             41 ANSFFEEFKKGNLERECMEEICSYEEVREIFEDDEKTKEYWTKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 ANSFLXXLRHGSLXRXCIXXICDFXXAKXIFQNVDDTLAFWSKH
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15; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Haemost.
                                                                                                                                                                                                                                                                                                                                                                                               and Characterization Haemost. 0:0-0(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                    Liang Z.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              481 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (TrEMBLrel. 08, Las (TrEMBLrel. 16, Las FACTOR X PRECURSOR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                         N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             80:87-91(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              481 (
53985 MW;
                                                                                                                                                                                                                                                                                                                                                                                                              Castellino F.J., Rosen erization of the Murine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        45.5%;
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16,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 91; DB:
Pred. No. 2.3e
11; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Craniata; Vertebrata; E
Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDNA
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2.3e-07
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ion update)
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Factor X
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Collen
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                                                                                                                                                                                                                                                                                                                                                                                                                Gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Repeat;
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RESULT
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014668
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Best Local Similarity 34...
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local :
                                                                                                                                                                                                                        01-MAR-2001
01-MAR-2001
01-MAR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Kulman J.D., Harris J.E., Haldeman B.A., Davie proc. Natl. Acad. Sci. U.S.A. 0:0-0(1997). EMBL; AF009242; AAB67070.1; -. HSSP; P00740; 1CFH. InterPro; IPR000294; -. InterPro; IPR000294; -. InterPro; IPR002383; -. Desc. Procession of the Processio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CHAIN
SEQUENCE
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PROSITE; PS01187; EGF_CA; 1.

PROSITE; PS00011; GLU_CARBOXYLATION; 1.

PROSITE; PS00134; TRYPSIN_HIS; UNNOWN_1.

PROSITE; PS00135; TRYPSIN_SER; 1.

SMART; SM00020; Tryp_SPC; 1.

Calcium-binding; EGF-11ke domain; Glycoprotein; Hydrolase; Serine protease; Signal.
                                                                                            Ornithorhynchus anatinus (Duckbill platypus).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Monotremata; Ornithorhynchidae; Ornithorhynchus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR002383; -.
Pfam; PF00594; gla; 1.
PRINTS; PR00001; GLABLOOD.
PROSITE; PS00001; GLU_CARBOXYLATION;
SMART; SM00069; GLA; 1.
SEQUENCE 218 AA; 24947 MW; 265387
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Homo sapiens (Human).
Homo sapiens (Human).
'--rvota; Metazoa; Chordata;
'--rvota; Primates;
                                                                                                                                                                                           01-MAR-2001 (TrEMBLrel. COAGULATION FACTOR X.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-JAN-1998 (TrEMBLrel. 05, 01-JAN-1998 (TrEMBLrel. 05, 01-MAR-2001 (TrEMBLrel. 16, PROLINE-RICH GLA PROTEIN 1.
      SEQUENCE
                                    NCBI_TaxID=9258; [1]
                                                                                                                                                                                                                                                                                                                        Q9GMD9;
                                                                                                                                                                                                                                                                                                                                                  Q9GMD9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               014668;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity nes 16; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 ANSFLXXLRHGSLXRXCIXXICDFXXAKXIFQNVDDTLAFWSKH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 ANSFLXXLRHGSLXRXCIXXICDFXXAKXIFQNVDDTLAFWSKH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ANSFFEEFKKGNLERECMEEICSYEEVREIFEDDEKTKEYWTKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ANGFFEEIRQGNIERECKEEFCTFEEAREAFENNEKTKEFWSTY
      FROM
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                                                                                                                                                                                                                                                      (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
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Pfam; PF00054; laminin_G; 1.

Pfam; PF00594; gla; 1.

Pfam; PF00594; gla; 1.

PRINTS; PR00001; GLABLOOD.

PROSITE; PS000010; ASX_HYDROXYL; 3.

PROSITE; PS00102; EGF_1; UNKNOWN_1.

PROSITE; PS01186; EGF_2; 3.

PROSITE; PS01187; EGF_CA; 2.

PROSITE; PS01187; EGF_CA; 2.
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Q16519;
Q1-NOV-1996
Q1-NOV-1996
Q1-NOV-1996
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InterPro; IPR000294; -.
InterPro; IPR000561; -.
InterPro; IPR001791; -.
InterPro; IPR001881; -.
InterPro; IPR001881; -.
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SIGNAL
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SEQUENCE FROM N.A.
MEDLINE-86313649; PubMed=2944113;
MEDLINE-86313649; PubMed=2944113;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; M14338; AAA60181.1; HSSP; P07204; 1EGT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of blood coagulation."; Proc. Natl. Acad. Sci. U.S.A.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                        SEQUENCE
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                                                                                                                                                                                                                                                   Calcium-binding; EGF-like domain; Glycoprotein;
                                                                                                                                                                                                                                                                         SMART;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Isolation and sequence of the cDNA
16
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  ANSILEETKQGNLERECIEELCNKEEAREVFENDPETDYFYPKY
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                                                                          l Similarity
16; Conserv
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Pred. No. 1.2e
10; Mismatches
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Last sequence up
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Pred. No. 2.5e
8; Mismatches
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9A8C044C503BF474
                                                                                                                                                                                                                 POTENTIAL.
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1.2e-05;
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Matches 16; Conserv
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Pfam; PF00054; laminin_G; 1.
Pfam; PF00594; gla; 1.
Pfam; PF000594; gla; 1.
PRINTS; PR000010; ASX_HYDROXYL
PROSITE; PS000012; EGF_1; UNKNO
PROSITE; PS01186; EGF_2; 3.
PROSITE; PS01187; EGF_CA; 2.
PROSITE; PS01011; GLU_CARBOXYL
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EMBL; X12892; CAA31383.1;
InterPro; IPR000152; -.
InterPro; IPR000294; -.
InterPro; IPR000561; -.
                                                            MEDLINE-87182874; PubMed-3471151; MacGL111vray R.T., Irwin D.M., Guinto "Recombinant genetic approaches to fun Ann. N.Y. Acad. Sci. 485:73-79(1986). EMBL; M33031; AAA60220.1; -. HSSP; P00735; 2PF1.
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01-NAR-2001 (TrEMBLrel. 16, Las
THROMBIN PRECURSOR (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHAIN
SEQUENCE
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InterPro;
                                                                                                                                                                                                                                                                                                                                         Homo sapiens (Human).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR001791; -.
InterPro; IPR001881; -.
InterPro; IPR002383; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Wydro R., Co
Dahlback B.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens (Human).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-OCT-2000 (TrembLrel 15, 01-OCT-2000 (TrembLrel 15, 01-MAR-2001 (TrembLrel 16, 01-MAR-2001 (TrembLre
                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
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      InterPro;
                                                                                                                                                                                                                                                                                                  NCBI_TaxID=9606;
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                                      InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  16
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        E; PS01187; EGF_CA; 2.
E; PS00011; GLU_CARBOXYLATION; 1.
SW00179; EGF_CA; 1.
Sw00179; EGF_CA; 1.
m-binding; EGF_like domain; Glycoprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRECURSOR
IPR000294; -. IPR002383; -.
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llarity 36.4%;
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EGF_1; UNKNOWN_1
EGF_2; 3.
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C67345ECE8645174 CRC64;
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Catarrhini; Hominidae,
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Catarrhini; Hominidae;
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                                                                                                                                                      ito E.R., Stone J.C functional mapping
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                                                                                                                                                         thrombin.";
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Best Local S
Matches 15
       Pfam; PF00008; EGF; 2.

R Pfam; PF000089; trypsin; 1.

R Pfam; PF00089; trypsin; 1.

R Pfam; PF000949; gla; 1.

R Pfam; PF000949; gla; 1.

R PRINTS; PR00722; CHYMOTRYPSIN.

R PROSITE; PS00001; ALDEHYEB_DEHYDR_CYS; UNKNOWN_1.

R PROSITE; PS00010; ASX_HYDROXYL; UNKNOWN_1.

R PROSITE; PS000225; CRYSTALLIN_BETAGAMMA; UNKNOWN_1.

R PROSITE; PS000117; EGF_1; UNKNOWN_1.

R PROSITE; PS001187; EGF_1; UNKNOWN_1.

R PROSITE; PS00011; GLU_CARBOXYLATION; 1.

R PROSITE; PS00013; TRYPSIN_HIS; UNKNOWN_1.

R PROSITE; PS0013; TRYPSIN_SER; 1.

R SMART; SM00020; Tryp_SPC; 1.

Calcium-binding; EGF-like domain; Glycoprotein; Hydr Serine protease.
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PRINTS; PR0001; GLABLOOD.
PROSITE: PS00011; GLU_CARBC
SMART; SM00069; GLA; 1.
SIGNAL 1 43
                                                                                                                                                                                                Interpro; IPRO00152; -.
Interpro; IPRO00294; -.
Interpro; IPRO00561; -.
Interpro; IPRO00564; -.
Interpro; IPRO01254; -.
Interpro; IPRO01254; -.
Interpro; IPRO01314; -.
Interpro; IPRO01881; -.
Interpro; IPRO02383; -.
Interpro; IPRO02383; -.
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Eukaryota; Metazoa; C
Eukaryota; Eutheria; F
Mammalia; Eutheria; F
NCBI_TaxID=10090;
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NON_TER
SEQUENCE
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Q61109;
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01-MAR-2001 (TremBLrel.
COAGULATION FACTOR VII.
SEQUENCE 446 P
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HSSP; P08709; 1BF9
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                                                                                                                                                                                                                                                                                                                                                                    Thromb.
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Castellino F.;
                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM
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--- SIMILARITY: TO SERINE PROTEASES, TRYPSIN FAMILY
--- SIMILARITY: TO CHYMOTRYPSIN SERINE PROTEASE FAM.
                                                                                                                                                                                                                                                                                                                                                                           Characterization of a cDNA encoding murine coagulation
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n E., Geng J.P.,
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Rodentia;
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                    domain; Glycoprotein; Hydrolase;
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Sciurognathi; Muridae;
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R InterPro; IPR000294; -.

R InterPro; IPR000561; -.

R InterPro; IPR000742; -.

R InterPro; IPR0007438; -.

R InterPro; IPR001838; -.

R InterPro; IPR001383; -.

R InterPro; IPR002383; -.

R Pfam; PF00504; GIA; -.

R Pfam; PF00504; GIABLOOD.

R PRINTS; PR0001; GLABLOOD.

R PRINTS; PR00010; ASX_HYDROXYL; UNKNOWN_1.

R PROSITE; PS001186; EGF_1; UNKNOWN_1.

R PROSITE; PS01187; EGF_1; UNKNOWN_1.

R PROSITE; PS01187; EGF_1; CA; 1.

R PROSITE; PS01187; EGF_11ke; 1.

R CALCium-binding; EGF-1ike domain; Glycoprotein; Repeat.

W CALCium-binding; EGF-1ike domain; Glycoprotein; Repeat.
                                                                                                                                                                                                                   Query Match
Best Local :
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Best Local :
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 Q14316
Q14316;
01-NOV-1996
01-AUG-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=96003866; PubMed=7568220; Brandstetter H., Bauer M., Huber R., Lollar P., Bode W.; "X-ray structure of clotting factor IXa: active site and module structure related to Xase activity and hemophilia B."; Proc. Natl. Acad. Sci. U.S.A. 92:9796-9800(1995).
                                                                                                                                                                                                                                                                                                  NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (MAR-1996) to EMBL; U51135; AAA96318. HSSP; P00740; 1IXA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Mammalia; Eutheria; NCBI_TaxID=9823;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NAR-2001 (TrEMBLrel. 16, Last annotation update)
MATURE PORCINE FACTOR IX (FRAGMENT).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lollar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TISSUE=LIVER;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sus scrofa (Pig)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q28994;
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                                                                                                                                                                                                    Local Similarity nes 13; Conserv
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                                                                                                                                   4 GNLERECIEEKCSFEEAREVFENTEKTNEFWKQY
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138 AA;
   (TrEMBLrel.
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                                                   PRELIMINARY;
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                                                                                                                                                                                                                                                                                    138
15515 MW;
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   11,
                                                                                                                                                                                                 Score 79; DB Pred. No. 7.3e
7; Mismatches
 Created)
Last sequence
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Pred. No. 1.7e-05;
                                                    PRT;
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Sus.
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Best Local
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Q29094;
01-NOV-1996 (TrEMBLrel. 01,
01-NOV-1996 (TrEMBLrel. 16,
01-MAR-2001 (TrEMBLrel. 16,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL;
Eukaryota; Metazoa; Mammalia; Eutheria; NCBI_TaxID=9823;
                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE 456 A
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Mammalia; Eutheria;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE OF 3-19 FROM
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bird C
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                                                 Sus scrofa (Pig).
                                                                    PROS
                                                                                   PROTEIN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Briet E.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Reitsma P.A., Bertina R.M., Ploos
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=88327116; PubMed=3416069;
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                                                                                                                                                                                                                                                    53 GNLERECMEEKCSFEEAREVFENTERTTEFWKQY
                                                                                                                                                                                                                                                                                   11 gSLXRXCIXXICDFXXAKXIFQNVDDTLAFWSKH 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AL033403;
                                                                                   S
                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                   (FRAGMENT).
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Primates;
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35.3%;
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Pred. No. 5
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R InterPro; IPRO00152; ...

R InterPro; IPR000152; ...

R InterPro; IPR000742; ...

R InterPro; IPR000742; ...

R InterPro; IPR001314; ...

R InterPro; IPR001318; ...

R InterPro; IPR001318; ...

R InterPro; IPR00138; ...

R InterPro; IPR00138; ...

R InterPro; IPR00138; ...

R Pfam; PP00008; EGF; 2.

R Pfam; PP00009; EGF; 2.

R Pfam; PP00009; EGF; 1.

R Pfam; PP00010; EABLOOD.

R PRINTS; PR00010; EAFBLOOD.

R PRINTS; PR00010; GASX_HYDROXYL; UNKNOWN_1.

R PRINTS; PR000010; GASX_HYDROXYL; UNKNOWN_1.

R PROSITE; PS00118; EGF_1; UNKNOWN_1.

R PROSITE; PS01187; EGF_2; 2.

R PROSITE; PS01187; EGF_2; 2.

R PROSITE; PS01134; TRYPSIN_ISS; UNKNOWN_1.

R PROSITE; PS00135; TRYPSIN_SER; 1.

R PROSITE; PS00135; TRYPSIN_SER; 1.

R PROSITE; PS01187; EGF-1ike domain; Glycoprotein; Hydrolase; Rep
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F9 (COAGULATION FACTOR IX (PLASMA THROMBOPLASTIC COMPONENT, CHRISTMAS DISEASE, HARMOPHILIA B)) (FACTOR IX).
F9 OR FACTOR IX.
Chordata; Craniata; Vertebrata; Cetartiodactyla; Suina; Suidae;
                                                                                                                      Last sequence update)
Last annotation update)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        54E20A1B3964E234 CRC64;
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5.8e-05;
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                         Euteleostomi;
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RP SEQUENCE FROM N.A.

RC TISSUE-LIVER;

RC TISSUE-LIVER;

RX MEDLINE-95134217; PubMed-7832752;

RX MEDLINE-95134217; PubMed-7832752;

RX MEDLINE-95134217; PubMed-7832752;

RX MEDLINE-95134217; PubMed-7832752;

RT "Identification of candidate residues for interaction of protein S

RT "Identification of candidate residues for interaction of protein S

RT with C4b binding protein and activated protein C.";

RT Blochem. J. 305:397-403(1995).

RIT InterPro; IPR000152; -.

DR InterPro; IPR00054; -.

DR InterPro; IPR000561; -.

DR InterPro; IPR001791; -.

DR InterPro; IPR00183; -.

DR Pfam; PF00004; EGF; 4.

DR Pfam; PF00004; Jaminin_G; 1.

DR Pfam; PF00004; Jaminin_G; 1.

DR Pfam; PF00001; GLABLOOD.

DR PROSITE; PS00001; GASA_MYDROXYL; 4.

PROSITE; PS00002; EGF-1; UNKNOWN_1.

DR PROSITE; PS01186; EGF-2; 3.

DR PROSITE; PS01186; EGF-1; Luc Gamain; Glycoprotein; Hydroxylation; Repeat;

KW Vitanin K.
                                                                                                                                             Cuery Match 37.5%; Score 75; DB 6; Length 648; Best Local Similarity 36.6%; Pred. No. 0.00019; Matches 15; Conservative 8; Mismatches 18; Indels
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Minimum DB
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Match
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1 ANSFLXXLRHGSLX
   November 8, 2001, 08:53:16; Search time 9.93 Seconds (without alignments) 151.787 Million cell updates/sec
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Gapop 10.0 , Gapext 0.5
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FA7_BOVIN
FA10_RABIT
FA7_BOVIN
THRB_RAT
THRB_MOUSE
PRTS_HUMAN
FA9_CANFA
PA9_HUMAN
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P04070 homo sapien
P33587 mus musculu
P31394 rattus norv
Q28661 oryctolagus
P00745 bos taurus
P901745 bos taurus
P901743 bos taurus
P00747 homo sapien
O19045 oryctolagus
P00747 homo sapien
O19045 oryctolagus
P18292 rattus norv
P19221 mus musculu
Q28520 macaca mula
P07225 homo sapien
P19540 canis famil
P16294 mus musculu
P98118 oryctolagus
P70375 mus musculu
P98118 oryctolagus
P70375 mattus norv
P00740 homo sapien
P0724 bos taurus
P00741 bos taurus
P53813 rattus norv
P00740 homo sapien
P00741 bos taurus
P53813 rattus norv
P00741 bos taurus
P81428 tropidechis
P52155 gallus gall
O08761 mus musculu
P00735 bos taurus
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MEDIJINE-90098906; PubMed-Zbuzioz, Mevan D. Grundy C., Chitolie A., Talbot S., Bevan D. Protein C London 1: recurrent mutation at the protein C gene causing thrombosis."; Nucleic Acids Res. 17:10513-10513(1989).
                MEDLINE=92380660; PubMed=1511988; Grundy C.B., Chisholm M., Kakkar V.V., "A novel homozygous missense mutation i causing recurrent venous thrombosis."; Hum. Genet. 89:683-684(1992).
                                                                                         "Prottein C deficiency Hong Kong deficiency caused by two mutant a missense mutation.";
Blood 80:126-133(1992).
                                                                                                                                                                            "Protein CVermont: symptomatic associated with two GLA domain Blood 79:1456-1465(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sala N., Cooper D.N.; "Protein C deficiency: a database of mutations. For the Prote Subcommittee of the Scientific and Standardization Committee International Society on Thrombosis and Haemostasis."; Thromb. Haemost. 69:77-84(1993).
VARIANTS
                                                                                                                                         WEDLINE=92305321; Puby
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                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cortese R.;
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Mimuro J., Muramatsu S., Kaneko M., Yoshitake S., Iijima K., Makamura K., Sakata Y., Matsuda M.; Makamura K., Sakata Y., Matsuda M.; Washamal protein C (protein C Yonago) with an amino acid substitution of Gly for Arg-15 caused by a single base mutation to G in codon 57 (CGG-->GGG). Deteriorated calcium-dependent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VARIANTS G-14; Q-211; Y-244; Q-253; MEDLINE=93271391; PubMed=8499565; Poort S.R., Pabinger-Fasching I., Me
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Yamamoto K., Matsushita T., Sugiura I., Takamatsu J., Iwasaki E., Wada H., Deguchi K., Shirakawa S., Saito H.; Wada H., Deguchi K., Shirakawa S., Saito H.; "Homozygous protein C deficiency: identification of a novel missense mutation that causes impaired secretion of the mutant protein C."; J. Lab. Clin. Med. 119:682-689(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Grundy C.B., Schulman S., Tengborn L., Kakkar "Two different missense mutations at Arg 178 cgene causing recurrent venous thrombosis."; Hum. Genet. 89:685-686(1992).
                                                                        SEQUENCE OF 43-64
MEDLINE=93237511;
                                                                                                               Wacey A., Cooper D.N., Tuddenham E.G., Bernardi F.; "Symptomatic type II protein C deficiency caused by a missense mutation (Gly 381-->Ser) in the substrate-binding pocket."; Br. J. Haematol. 84:285-289(1993).
                                                                                                                                                                                                                                                                                                                                  "A Gla domain mutation (Arg 15-->Tr) causing type 2 protein C deficiency thrombosis.";
                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=93271396; PubMed=8499568; Millar D.S., Grundy C.B., Bignell P., Kakkar Y.V., Cooper D.N.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Juhan-Vague I., Aiach "Five novel mutations
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ngard J.S., Montgomery R.R.,
Coughlin J., Griffin J.H.;
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                                                          INTO A LIGHT CHAIN AND A HEAVY CHAIN PRECURSOR, WHICH IS CLEAVED INTO A LIGHT CHAIN AND A HEAVY CHAIN HELD TOGETHER BY A DISULFIDE BOND. THE ENZYME IS THEN ACTIVATED BY THROMBIN, WHICH CLEAVES A TETRADECAPEPTIDE FROM THE AMINO END OF THE HEAVY CHAIN; THIS REACTION, WHICH OCCURS AT THE SURFACE OF ENDOTHELIAL CELLS, IS STRONGLY PROMOTED BY THROMBONDULIN.

11 TISSUE SPECIFICITY: PLASMA; SYNTHESIZED IN THE LIVER.
12 PTM: THE VITAMIN K-DEPENDENT, ENZYMATIC CARBOXYLATION OF SOME GLU RESIDUES ALLOWS THE MODIFIED PROTEIN TO BIND CALCIUM.
13 MIGCELLANEOUS: CALCIUM ALSO BINDS, WITH STRONGER AFFINITY TO ANOTHER SITE, BEYOND THE GLA DOMAIN. THIS GLA-INDEPENDENT BINDING SITE IS NECESSARY FOR THE RECOGNITION OF THE THROMBONDULIN CONFLEX.
14 SIMILARITY: BELONGS TO PEPTIDASE FAMILY S1; ALSO KNOWN AS THE TRYPSIN FAMILY.
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MEDLINE=92316897; PubMed=1618739;
Tada N., Sato M., Tsujimura A., Iwase R., H
Tada Indian and characterization of a mouse
J. Blochem. 111:491-495(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                           region of mammalian protein C.";
Br. J. Haematol. 86:590-600(1994).
Br. J. Haematol. 86:590-600(1994).
FUNCTION: PROTEIN C IS A VITAMIN K-DEPENDENT SERINE F REGULATES BLOOD COAGULATION BY INACTIVATING FACTORS V IN THE PRESENCE OF CALCIUM IONS AND PHOSPHOLIPIDS.
-I- CATALYTIC ACTIVITY: DEGRADATION OF BLOOD COAGULATION
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                       This
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"A comparative study of partial primary structures of (
region of mammalian profein C.":
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MEDLINE-94318474;
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Castellino F.J.;
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Mammalia; Eutheria;
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MGD; MGI:97771; Proc.
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Pfam; PF00008; EGF; 2.
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PRINTS; PR00072; CHYMOTRYPSIN.
PROSITE; PS0011; GLU_CARBOXYLATION; 1.
PROSITE; PS00011; GLU_CARBOXYLATION; 1.
PROSITE; PS01186; EGF_2; 2.
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SUBUNIT: SYNTHESIZED AS A SINGLE CHAIN PRECURSOR, WHICH IS CLEAVED INTO A LIGHT CHAIN AND A HEAVY CHAIN HELD TOGETHER BY A DISULFIDE BOND. THE ENZYME IS THEN ACTIVATED BY THROMBIN, WHICH CLEAVES A TETRADECAPEPTIDE FROM THE AMINO END OF THE HEAVY CHAIN; THIS REACTION, WHICH OCCURS AT THE SURFACE OF ENDOTHELIAL CEILS, IS STRONGLY PROMOTED BY THROMBONDULIN.

IT TISSUE SPECIFICITY: PLASMA; SYNTHESIZED IN THE LIVER.

PWH: THE VITAMIN K-DEPENDENT, ENZYMATIC CARROXYLATION OF SOME GLU RESIDUES ALLOWS THE MODIFIED PROTEIN TO BIND CALCIUM.

MISCELLANEOUS: CALCIUM ALSO BINDS, WITH STRONGER AFFINITY TO ANOTHER SITE, BEYOND THE GLA DOMAIN. THIS GLA-INDEPENDENT BINDING SITE IS NECESSARY FOR THE RECOGNITION OF THE THROMBIN-THROMBONDOULIN COMPLEX.

SIMILARITY: CONTAINS 2 EGF-LIKE DOMAINS.

SIMILARITY: BELONGS TO PEPTIDASE FAMILY S1; ALSO KNOWN AS THE TRYPSIN FAMILY.
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01-JUL-1993
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"The cDNA cloning and mRNA expression of rat protein C."
Biochim. Biophys. Acta 1131:329-332(1992).
-I- FUNCTION: PROTEIN C IS A VITAMIN K-DEPENDENT SERINE
REGULATES BLOOD COAGULATION BY INACTIVATING FACTORS
IN THE PRESENCE OF CALCIUM IONS AND PHOSPHOLIPIDS.
-I- CATALYTIC ACTIVITY: DEGRADATION OF BLOOD COAGULATION
                                                                                                                                                                                                                                                                                                                                                                         Rattus norvegicus (Rat).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; E
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae;
NCBI_TaxID=10116;
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PRINTS; PRO0722; CHYMOTRYPSIN.

PROSITE; PS00010; ASX_HYDROXYL; 1.

PROSITE; PS00011; GLU_CARBOXYLATION; 1

PROSITE; PS00022; EGF_1; 1.

PROSITE; PS01186; EGF_2; 2.

PROSITE; PS01187; EGF_CA; 1.

PROSITE; PS01187; EGF_CA; 1.

PROSITE; PS00134; TRYPSIN_HIS; 1.

PROSITE; PS00135; TRYPSIN_SER; 1.
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InterPro; IPR001314; -.
InterPro; IPR0013181; -.
InterPro; IPR002383; -.
Pfam; PF00008; EGF; 2.
Pfam; PF000594; gla; 1.
Pfam; PF000099; trypsin; 1.
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InterPro; IPR0001:
InterPro; IPR0002:
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Q28661;
15-DEC-1998 (Rel. 3
15-DEC-1998 (Rel. 3
15-JUL-1999 (Rel. 3
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SEQUENCE
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InterPro;
                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collab between the Swiss Institute of Bioinformatics and the EMBL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for commodified and this statement is not removed. Usage by and for commodified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Shen L., He X., Dahlback B.;
Submitted (FEB-1996) to the EMBL/GenBank/DDBJ databases.
-I- FUNCTION: PROTEIN C IS A VITAMIN K-DEPENDENT SERINE PRO-
REGULATES BLOOD COAGULATION BY INACTIVATING FACTORS VA
IN THE PRESENCE OF CALCIUM IONS AND PHOSPHOLIPIDS.
-I- CATALYTIC ACTIVITY: DEGRADATION OF BLOOD COAGULATION FA
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Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammala; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15-DEC-1998 (Rel. 37, Created)
15-DEC-1998 (Rel. 37, Last sequence update)
15-JUL-1999 (Rel. 38, Last annotation update)
VITAMIN-K DEPENDENT PROTEIN C PRECURSOR (EC 3.4.21.69)
(AUTOPROTHROMBIN IIA) (ANTICOAGULANT PROTEIN C) (BLOOD
                                Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RABIT
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                                                                                                                                                                                                                                                                                                                                                           STRONGLY PROMOTED BY THROMBOMODULIN.

TISSUE SPECIFICITY: PLASMA; SYNTHESIZED IN THE LIVER.

PIM: THE UTIAMIN K-DEPENDENT, ENZYMATIC CARBOXYLATION

GLU RESIDUES ALLOWS THE MODIFIED PROTEIN TO BIND CALCI

GLUCELLANEOUS: CALCIUM ALSO BINDS, WITH STRONGER AFFIN

ANOTHER STIPE, BEYOND THE GLA DOMAIN. THIS GLA-INDEPEND

SITE IS NECESSARY FOR THE RECOGNITION OF THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUBUNIT: SYNTHESIZED AS A SINGLE CHAIN PRECURSOR, WHICH IS CLEAVED INTO A LIGHT CHAIN AND A HEAVY CHAIN HELD TOGETHER BY A DISULFIDE BOND. THE ENZYME IS THEN ACTIVATED BY THROMBIN, WHICH CLEAVES A TETRADECAPEPIDE FROM THE AMINO END OF THE HEAVY CHAIN; THIS REACTION, WHICH OCCURS AT THE SURFACE OF ENDOTHELIAL CELLS, IS
                                                                                                                                                                                                                                                                                                               THROMBIN-THROMBOMODULIN COMPLEX.
SIMILARITY: CONTAINS 2 EGF-LIKE DOMAINS
SIMILARITY: BELONGS TO PEPTIDASE FAMILY
rPro; IPR000152; -. rPro; IPR000294; -. rPro; IPR000561; -. rPro; IPR001834; -. rPro; IPR001881; -. rPro; IPR00189; EGF; 2. pP000089; EGF; 2. pP000089; trypsin; 1
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nilarity 63.6%;
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PROSITE; PSO1187; EGF_CA; 1.

PROSITE; PS00134; TRYPSIN_HIS; 1.

PROSITE; PS00135; TRYPSIN_SER; 1.

Blood coagulation; Glycoprotein; Plasma; Serine proteations carboxyglutamic acid; Calcium-binding; Vitamin K corp-14ke domain; Repeat; Endothelial cell; Hydrolase;
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PROTEIN C HEAV.

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GAMMA-CARBOXYGLUTAMIC I
(BY SIMILARITY).

GAMMA-CARBOXYGLUTAMIC I
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SIMILARITY.

TAMIN K-DEPENDENT PROTEIN C.

TOTEIN C LIGHT CHAIN (BY SIMILARITY).

TOTEIN C HEAVY CHAIN (BY SIMILARITY).

TIVATION PEPTIDE (BY SIMILARITY).
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RA JOHNSON A.E., ESMON C.T.;

RA JOHNSON A.E., ESMON C.T.;

RT "Structural changes required for activation of protein C are induced for "Structural changes required for activation of protein C are induced RT by Ca2+ binding to a high affinity site that does not contain gamma-ret carboxydiutamic acid.";

RL J. Biol. Chem. 258:5554-5560(1983).

CC :- FUNCTION: PROTEIN C IS A VINACTIVATING FACTORS VA AND VIIIA CC.

IN THE PRESENCE OF CALCIUM IONS AND PHOSPHOLIPIDS.

CC :- CATALYTIC ACTIVITY: DEGRADATION OF BLOOD COAGULATION FACTORS VA AND VIIIA CC.

IN THE PRESENCE OF CALCIUM IONS AND PRECURSOR, WHICH IS CLEAVED CO.

CC :- SUBUNIT: SYNTHESIZED AS A SINGLE CHAIN PRECURSOR, WHICH IS CLEAVED INTO A LIGHT CHAIN AND A HEAVY CHAIN HELD TOGETHER BY A DISULFIDE CC.

INTO A LIGHT CHAIN AND A HEAVY CHAIN HELD TOGETHER BY A DISULFIDE OF BROND. THE ENZYME IS THEN ACTIVATED BY THROMBIN, WHICH CLEAVES A TETRADECAPEPTIDE FROM THE AMINO END OF THE HEAVY CHAIN; THIS CC. TRENGELY PROMOTED BY THROMBOMODULIN.

CC :- TISSUE SPECIFICITY: PLASMA; SYNTHESIZED IN THE LIVER.

CC :- MISCULLANEOUS: CALCIUM ALSO BINDS, WITH STRONGER AFFINITY TO ANOTHER SITE, BEYOND THE GLA DOMAIN. THIS GLA-INDEPENDENT BINDING COLLANGUS: CALCIUM ALSO BINDS, WITH STRONGER AFFINITY TO ANOTHER SITE, BEYOND THE GLA DOMAIN. THIS GLA-INDEPENDENT BINDING C.- SIMILARITY: CONTAINS 2 EGF-LIKE DOMAINS.

CC :- SIMILARITY: CONTAINS 2 EGF-LIKE DOMAINS.

CC :- SIMILARITY: BELONGS TO PEPTIDASE FAMILY S1; ALSO KNOWN AS THE CONTAINS.
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13-AUG-1987 (Rel. 05, Last sequence update)
30-MAY-2000 (Rel. 39, Last annotation update)
VITAMIN'R DEPENDENT PROTEIN C PRECURSOR (EC 3.
(AUTOPROTHROMBIN IIA) (ANTICOAGULANT DEPARTOR XIV) (FRAGMENT')
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Long G.L., Balagaje R.M., McGillivray R.T.A.;
"Cloning and sequencing of liver cDNA coding for
Proc. Natl. Acad. Sci. U.S.A. 81:5653-5656(1984).
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Stenflo J., Fernlu
"Amino acid sequer
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Drakenberg T., Fernlund P., Roepstorff P., Stenflo J.;
Drakenberg Transpartic acid in vitamin K-dependent protein
Proc. Natl. Acad. Sci. U.S.A. 80:1802-1806(1983).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-83007325; PubMed-6896876;
Fernlund P., Stenflo J.;
Pamino acid sequence of the light chain
J. Biol. Chem. 257:12170-12179(1982).
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Bovidae; Bovinae;
NCBI_TaxID=9913;
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hem. 258:5548-5553(1983).
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sequence of the heavy chain
em. 257:12180-12190(1982).
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InterPro; IPR000261; -...
InterPro; IPR000254; -...
InterPro; IPR001881; -...
InterPro; IPR001881; -...
Pfam; PF00094; EGF; 1...
Pfam; PF00594; 91a; 1...
Pfam; PF00099; trypsin; 1...
PROSITE; PS00011; GLU_CARBOXYLATION; 1.
PROSITE; PS00113; GLU_CARBOXYLATION; 1.
PROSITE; PS01186; EGF_1; 1.
PROSITE; PS01187; EGF_1; 1.
PROSITE; PS01187; EGF_1; 1.
PROSITE; PS01187; EGF_1; 1.
PROSITE; PS01187; EGF_2; 2.
PROSITE; PS01187; EGF_1; 1.
PROSITE; PS01134; TRYPSIN_HS; FALSE_NE
PROSITE; PS01134; TRYPSIN_SER; 1.
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entities requires a license agreement (See http://www.isb-
or send an email to license@isb-sib.ch).
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ween the Swiss Institute of Bioinformatics
European Bioinformatics Institute. There
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ormatics and the EMBI
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7_RABIT STANDARD; PRT; 444 AA.
P98139; P79224;
01-FEB-1996 (Rel. 33, Created)
15-UUL-1998 (Rel. 36, Last sequence update)
01-OCT-2000 (Rel. 40, Last annotation update)
COAGGLATION FACTOR VII PRECURSOR (EC 3.4.21.21) (SERUM PROTHROMBIN
                                                                                                                                                                                                                                                                                                                                 MEDLINE=93190306; PubMed=8383365; Brothers A.B., Clarke B.J., Sheffield W.P., Blajchman M.A.; "Complete nucleotide sequence of the cDNA encoding rabbit coagulation factor VII.";
                                                                                          modified and this statement is not removed. entitles requires a license agreement (See or send an email to license@isb-sib.ch).
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Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
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Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
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             InterPro;
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SIMILARITY).

CATALYTIC ACTIVITY: HYDROLYSES ONE ARG-|-ILE BOFORM FACTOR XA.

SUBUNIT: HETERODIMER OF A LIGHT CHAIN AND A HEABY A DISULFIDE BOND (BY SIMILARITY).

TISSUE SPECIFICITY: PLASMA.

FYM: THE VITAMIN K-DEPENDENT, ENZYMATIC CARBOXY GLUTAMIC ACID RESIDUES ALLOWS THE MODIFIED PROTICALCIUM (BY SIMILARITY).

SIMILARITY: CONTAINS 2 EGF-LIKE DOMAINS.

SIMILARITY: BELONGS TO PEPTIDASE FAMILY S1; ALS TRYPSIN FAMILY.
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Pfam; PF00008; EGF; 2.
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E; PS00011; GLU_CARBOXYLATION; 1
E; PS00022; EGF_1; 1.
E; PS00134; TRYPSIN_HIS; 1.
E; PS00135; TRYPSIN_SER; 1.
E; PS01186; EGF_2; 1.
E; PS01187; EGF_CA; 1.
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PR00722;
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126
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BY SIMILARITY.
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                                                                                              Score 104; DE Pred. No. 5.8e 5; Mismatches
                                                                                                                                                                                                                                                N-LINKED
N-LINKED
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EGF-LIKE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FACTOR IXA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CATALYTIC
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                                                                                                                                                  DB
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                                                                                                16;
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80
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                                                                                                                                             Length 444;
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                                                                                                                                                                                                                                                                        (POTENTIAL)
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RESULT 7
FA10\_BOVIN

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J.
       CALCIUM-BINDING DATA.

MEDLIND-84185716; PubMed-6546930;
Sugo T., Bjoerk I., Holmgren A., Stenflo.

"Calcium-binding properties of bovine fac
carboxyglutamic acid-containing region.";
J. Biol. Chem. 259:5705-5710(1984).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21-JUL-1986
13-AUG-1987
15-JUL-1999
                                                                                                                                                                                                                                                                                          "Bovine chain.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mammalia;
Bovidae; E
                                                                                "Activation 
Xa-alpha to
                                                                                                                                                                                                                                                                                                                                                              McMullen B.A., Fujikawa K., Kisiel W.;
"The occurrence of beta-hydroxyaspartic acid in K-dependent blood coagulation zymogens.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Fung
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FA10_BOVIN
P00743;
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MEDLINE-94062825; Pu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   containing
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                                                                                 Xa-alpha
                                                                                                            MEDLINE=76053121;
                                                                                                                                     Biochemistry
                                                                                                                                                                                                                                                                                                                            MEDLINE-76053069;
                                                                                                                                                                                                                                                                                                                                                          Blochem.
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MEDLINE=84247315;
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                                                                8
                                                                        Proc.
                                                                                                                                                      "Bovine factor X 1a (activated Stuart
                                                                                                                                                                                   MEDLINE=73053314;
                                                                                                                                                                                                                                     "Identification of
                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE-83308813;
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factor).":
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE OF
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                                                                                                                                                                                                                                                [noue K., Morita T.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             taurus
                                                                                                                                     mammalian serine proteases.";
hemistry 11:4899-4903(1972).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INE-84247315; PubMed=6330671;
M.R., Campbell R.M., McGillivray R.T
od coagulation factor X mRNA encodes
aining a prepro leader sequence.";
eic Acids Res. 12:4481-4492(1984).
                                                                                                                                                                                                                                                                                   Natl.
                                                                                                                                                               K., Hermodson
h H., Davie E.V
                                                                                                                                                                                                                                                                                                                                                                                                                                                       D.L.,
                                                                 K., Titani K., Davie b....
Lion of bovine factor X (Stuart
a to factor Xa-beta.";
                                                                                                                                                                                                            Biochem.
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                                                                                                                                                                                                                                                                                                    factor X1
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Bovinae; Bo
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the activation of factor
chem. 218:153-163(1993).
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                                                                                                   PubMed=1059122;
ni K., Davie E.W
                                                                                                                                                                        PubMed=4264286;
son M.A., Fujikawa
                                                                                                                                                                                                                                                        33, AND CARBOHYDRATE-LINKAGE
  pubMed=8243461;
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                                                                                                                                                                                                                                                                                                                              PubMed=1059093;
                                                                                                                                                                                                                                                                                                                                                       coagulation zymogens.";
Res. Commun. 115:8-14(1983).
                                                                                                                                                                                                                                                                                                                                                                                  PubMed=6688526;
jikawa K., Kisiel W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PubMed-6766735;
                                                                                                                                                                                                                    O-linked oligosaccharide coagulation factor X. The tivation of factor X.";
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Cetartiodactyla; Rum
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entities
or send a
                                                                                                                                                                                                                                                                                                       combined NMR-small angle x-ray scattering study.";
Blochemistry 35:11547-11559(1996).

-i- FUNCTION: FACTOR XA IS A VITAMIN K-DEPENDENT GLYCOPROTEIN T CONVERTS PROTHROMBIN TO THROMBIN IN THE PRESENCE OF FACTOR CA++, AND PHOSPHOLIPID DURING BLOOD CLOTTING.

-i- CAPALYTIC ACTIVITY: PREFERENTIAL CLEAVAGE: ARG-|-THR AND TH ARG-|-ILE BONDS IN PROTHROMBIN TO FORM THROMBIN.

-i- SUBUNIT: THE TWO CHAINS ARE FORMED FROM A SINGLE-CHAIN PRECED THE EXCISION OF TWO ARG RESIDUES AND ARE HELD TOGETHER B
 EMBL;
PIR; I
PDB; 1
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MEDLINE-96387194; PubMed-8:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "How an epidermal growth factor (EGF)-li
resolution NMR structure of the calcium
like domain in coagulation factor X.";
J. Biol. Chem. 267:19642-19649(1992).
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Selander-Sunnerhagen M., Ullner M.,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Biochemistry
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"Localization of the structural
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SULFATE-BINDING.
MEDLINE=86140210;
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                                                                                                                                                                 PTM: THE ACTIVATION PEPTIDE IS CLEAVED INTRINSIC PATHWAY), OR BY FACTOR VIIA (IMISCELLANEOUS: CALCIUM ALSO BLINDS, WITH ANOTHER SITE, BEYOND THE GLA DOMAIN.
SIMILARITY: CONTAINS 2 EGF-LIKE DOMAINS.
SIMILARITY: BELONGS TO PEPTIDASE FAMILY
                                                                                                                                                                                                                                 PTM:
:; X00673; CAA2528
; A00925; EXBO.
; 1APO; 31-JAN-94.
                                                                                       s SWISS-PROT entry is copyright. It is produced through a collaboration ween the Swiss Institute of Bioinformatics and the EMBL outstation - European Bioinformatics Institute. There are no restrictions on its by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LINE=91084483; PubMed=2261466; ander M., Persson E., Stenflo J., Drakenberg T.; NMR assignment and secondary structure of the Ca2(.amino-terminal epidermal growth factor like domain
                                                                                                                                                                                                                                                        MORE DISULFIDE BONDS.
PTM: THE VITAMIN K-DEPENDENT,
GLUTAMIC ACID RESIDUES ALLOWS
CALCIUM.
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or X is altered by Ca2+ binding to the
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                          CAA25286
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; PubMed=1627540;
...M., Persson E.,
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GLYCOSUITEDB; PO0743; ...

Carbbank; CCSD:7747; ...

Carbbank; CCSD:7799; ...

Carbbank; CCSD:11506; ...

Interpro; IPR000152; ...

Interpro; IPR000294; ...

Interpro; IPR000294; ...

Interpro; IPR0001314; ...

Interpro; IPR001314; ...

Interpro; IPR00131; ...

Pfam; PF00089; EGF; 2...

Pfam; PF00089; ETYPSIN; 1...

PFAM; PF00089; ETYPSIN; 1...

PROSITE; PS00101; GLABLOOD.

PROSITE; PS00101; GLU_CARBOXYLATION; 1...

PROSITE; PS00118; EGF_CA; 1...

PROSITE; PS00118; EGF_CA; 1...

PROSITE; PS00118; EGF_CA; 1...

PROSITE; PS00113; TRYPSIN_SER; 1...

PROSITE; PS00114; TRYPSIN_SER; 1...

PROSITE; PS00114; TRYPSIN_SER; 1...

PROSITE; PS00115; TRYPSIN_SER; 1...

PROSITE; PS00116; TRYPSIN_SER; 1...
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COAGULATION
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Last sequence update)
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id; Hydroxylation;
e domain; Repeat;
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FACTOR X HEAVY CHAIN.
ACTIVATION PEPTIDE:
ACTIVATED FACTOR XA, HE
MAY BE REMOVED BUT IS N
ACTIVATED FACTOR XA.
BEF-LIKE 1, CALCIUM-BIN
EGF-LIKE 1, CALCIUM-BIN
EGF-LIKE 2.
CATALYTIC.
CARBOXYGLUTAMIC A
GAMMA-CARBOXYGLUTAMIC A

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3D-structure.
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SEQUENCE OF 183-234, AND CARBOHYDRATE-L
MEDLINE=94062825; PubMed=8243461;
Inoue K., Morita T.;
"Identification of O-linked oligosaccha
peptides of blood coagulation factor X.
moieties in the activation of factor X.
Eur. J. Blochem. 218:153-163(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE-83257207; PubMed-6871167; McMullen B.A., Fujikawa K., Kisiel Kwa E.Y., Weinstein B.; "Complete amino acid sequence of t coagulation factor X: evidence for beta-hydroxyaspartic acid."; Biochemistry 22:2875-2884(1983).
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                        factor
Proc. N
-1- FUN
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Fung M.R., Hay C.W., McGillivray R.T.A.;
"Characterization of an almost full-length cDNA coding
blood coagulation factor X.";
Proc. Natl. Acad. Sci. U.S.A. 82:3591-3595(1985).
                                                                                                                                                    X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS)
MEDLINE=93360277; PubMed=9355279;
Padmanabhan K., Padmanabhan K.P., Tul:
Huber R., Blankenship D.T., Cardin A.I.
"Structure of human des(1-45) factor:
"J. Mol. Biol. 232:947-966(1993).
                                                                     MEDLINE=98283982; PubMed=9618463;
Kamata K., Kawamoto H., Honma T., Iwama T., F
"Structural basis for chemical inhibition of
                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-84222026;
Leytus S.P., Chung
"Characterization
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Leytus S.P., Foster D.C., Kurachi K., Davie E.W.;
"Gene for human factor X: a blood coagulation factor whose organization is essentially identical with that of factor l
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A. MEDLINE=87026600;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE-91216473; PubMed-1902434; Messler T.L., Pittman D.D., Long "Cloning and expression in COS-1 human coagulation factor X.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A. MEDLINE-91216473;
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Mammalia; Eutheria;
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                        FUNCTION:
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PubMed=6587384;
g D.W., Kisiel W., Kurachi K., Davi
of a CDNA coding for human factor
Sci. U.S.A. 81:3699-3702(1984).
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jikawa K., Kisiel W.,
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InterPro; IPR000294; -.
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InterPro; IPR000251; ...
InterPro; IPR001314; -.
InterPro; IPR00131; -.
InterPro; IPR00131; -.
InterPro; IPR00132; ITYPS1N; 1.
Pfam; PF00089; furpS1n; 1.
Pfam; PF00010; GLABLOOD.
PRINTS; PR00010; ASX_HYDROXYL; 1.
PROSITE; PS00011; GLU_CARBOXYLATION; 1.
PROSITE; PS000134; TRYPSIN_HIS; 1.
PROSITE; PS00134; TRYPSIN_SER; 1.
PROSITE; PS001186; EGF_2; 2.
PROSITE; PS01186; EGF_2; 2.
PROSITE; PS01187; EGF_CA; 1.
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or send a
                            PROSITE; PS01187; EGF_CA; 1. Glycoprotein; Hydrolase; Serine protease; Plasma; Blood coagulation; Gamma-carboxyglutamic acid; Hydroxylation; Calcium-binding; Vitamin Signal; Zymogen; EGF-like domain; Repeat; 3D-structure.
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                                                                                                                                                                                                                                                                                                                                                                                                                                 GlycoSuiteDB; P00742; CarbBank; CCSD: 29393;
              PROPEP
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PYM: THE ACTIVATION PEPTIDE
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CATALYTIC ACTIVITY: PREFERENTIAL CLEAVAGE: ARG-|-THR AND THEN ARG-|-ILE BONDS IN PROTHROMBIN TO FORM THROMBIN.

SUBBUNIT: THE TWO CHAINS ARE FORMED FROM A SINGLE-CHAIN PRECURSOR BY THE EXCISION OF TWO ARG RESIDUES AND ARE HELD TOGETHER BY 1 OF MORE DISULFIDE BONDS.

PTM: THE VITAMIN K-DEPENDENT, ENZYMATIC CARBOXYLATION OF SOME GLUTAMIC ACID RESIDUES ALLOWS THE MODIFIED PROTEIN TO BIND CALCIUM.
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FACTOR X LIGHT CHAIN
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FA7_HUMAN STANDARD; PRT; 466 AA.

P08709;
01-JAN-1988 (Rel. 06, Created)
01-JAN-1988 (Rel. 06, Last sequence update)
01-CCT-2000 (Rel. 40, Last annotation update)
01-CCT-2000 FACTOR VII PRECURSOR (EC 3.4.21.21) (SERUM PROTHROMBIN CONVERSION ACCELERATOR) (EPTACOG ALFA).
Hagen F.S., Gray ..... Insley M.I., ..... Woodbury R.G., Hart C.E., Insley M.I., ..... Davie E.W.;

"Characterization of a cDNA coding for human Natl. Acad. Sci. U.S.A. 83:2412-2416(19)
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MEDLINE=86205965; PubMed=3486420;
Hagen F.S., Gray C.L., O'Hara P.J., Grant F.J.
Woodbury R.G., Hart C.E., Insley M.Y., Kisiel
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Mammalia; Eutheria;
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O'Brien D.P., Gale K.M., A Meade T.W., Tuddenham E.G. "Purification and characte molecule with reduced acti
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Banner D.W., D'Arcy A., Chenc C., Winkler
Konigsberg W.H., Nemreson Y., Kirchhofer
"The crystal structure of the complex of
VIIa with soluble tissue factor.";
Nature 380:41-46(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Nishimura H., Kawabata S., Kisiel W., Hase S., Ikenaka T., Ta Shimonishi Y., Iwanaga S.;
"Identification of a disaccharide (Xy1-Glc) and a trisacchari (Xy12-Glc) O-glycosidically linked to a serine residue in the epidermal growth factor-like domain of human factors VII and protein Z and bovine protein Z.";
J. Biol. Chem. 264:20320-20325(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE-91250411; PubMed-1904059;
Bjoern S., Foster D.C., Thim L., Wibberg F.C.,
Komiyama Y., Pederseen A. H., Kisiel W.;
"Human plasma and recombinant factor VII. Cha
glycosylations at serine residues 52 and 60 a
directed mutagenesis of serine 52 to alanine.
J. Biol. Chem. 266:11051-11057(1991).
            male
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Pedersen
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Hagen F.S., Murray M.J.;
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MEDLINE-91300046;
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                                                                                                             Biochemistry
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                                                                                                                                                                                     STRUCTURE BY
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Zhang E., St Charles R.,
                                                                                                                                                                                                                                                          X-RAY CRYSTALLOGRAPHY (2.1 ANGSTROMS)
MEDLINE-99126538; PubMed-9925787;
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                                                                                                                                                                                                                                                                                                                                                                                                  Iwanaga S., Nishimura H., Kawabata S., Kisiel a'A new trisaccharide sugar chain linked to a sfire EGF-like domain of clotting factors VII adv. Exp. Med. Biol. 281:121-131(1990).
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MEDLINE-90062160; PubMed-2511201;
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Finn B.E., Gippert G.
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                                   characterization
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PubMed=2129367;
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A. 84:5158-5162(1987).
                    tion of factor VII 304-Gln: isolated from a clinically
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"Detection of missense mutations by single-s polymorphism (SSCP) analysis in five dysfunc coagulation factor VII.";
                                                                                                                                                                                                                                                                                                                                                                                                                                              Chaing S., Clarke B., Sridhara S., Chu K., Friedman Roberts H.R., Blajchman M., Monroe D.M., High K.A.; "Severe factor VII deficiency caused by mutations at cleavage site for activation and altering binding to Blood 83:3524-3535(1994).
                                                                                                                                                                           "A Thr359Met mutation in factorization deficiency causes defective Blood 87:5085-5094(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Marchetti G., Patracchini P., Gemmati D., Derosa V., Pinot Rodorigo G., Casonato A., Girolami A., Bernardi F.; "Detection of two missense mutations and characterization polymorphism in the factor VII gene (F7).";
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Arbini A.A., Mann
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Ohiwa M., Hayashi
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Rodeghiero F., Marchetti G.;
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Hum. Mol. Genet. 3:1175-1177(1994).
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Seligsohn U.;
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., Ferrati M., Patracchini P. mutation (178Cys-->Tyr) and 333Ser) in the human coagula
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T., Wada H., Minamikawa
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15-DEC-1998
15-DEC-1998
Thromb. Res. 85:503-514 (1997).

-i- FUNCTION: FACTOR XA IS A VITAMIN K-DEPENDENT GLYCOP! CONVERTS PROTHROMBIN TO THROMBIN IN THE PRESENCE OF CA++, AND PHOSPHOLIPID DURING BLOOD CLOTTING.

-i- CATALYTIC ACTIVITY: PREFERENTIAL CLEAVAGE: ARG-|-THI ARG-|-THE BONDS IN PROTHROMBIN TO FORM THROMBIN:

-i- SUBUNIT: THE TWO CHAINS ARE FORMED FROM A SINGLE-CHAINS THE EXCISION OF TWO ARG RESIDUES AND ARE HELD TOO MORE DISULFIDE BONDS.

-i- PTM: THE VITAMIN K-DEPENDENT, ENZYMATIC CARBOXYLATIC GLUTAMIC ACID RESIDUES ALLOWS THE MODIFIED PROTEIN TO CALCIUM (BY SIMILARITY).
                                                                                                                                                                              SEQUENCE FROM N.A. MEDLINE=97256311; PubMed=9101642;
                                                                                                                                                                                                                                 Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                   COAGULATION
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                                                                                                                                                      Pendurthi U.R., Anderson K.D., James H.L.; "Characterization of a full-length cDNA for
                                                                                                                                                                                                                                                           Oryctolagus
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SUBUNIT: HETERODIMER OF A LIGHT
BY A DISULFIDE BOND.

FISSUE SPECIFICITY: PLASMA.

FIM: THE VITAMIN K-DEPENDENT, I
GLUTAMIC ACID RESIDUES ALLOWS CALCIUM.
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SIMILARITY: CON
SIMILARITY: BEL
TRYPSIN FAMILY.
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PHARMACEUTICAL:
(NOVO NORDISK).
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FUNCTION: CIRCULATES IN THE BLOOD I
CONVERTED TO FACTOR VIIA BY FACTOR
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19; Conser
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Metazoa; Chordata; Craniata; Vertebrata;
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BELONGS T
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37, Last annotations
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rri C., Galdies R.,
mutations (P134T a
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PRINTS; PR00001; ĞLABLOOD.

PRINTS; PR00722; CHYMOTRYPSIN.

PROSITE; PS00010; ASX_HYDROXYL; 1.

PROSITE; PS00011; GLU_CARBOXYLATION; 1

PROSITE; PS00022; EGF_1; 1.

PROSITE; PS01186; EGF_2; 2.

PROSITE; PS01187; EGF_CA; 1.

PROSITE; PS01134; TRYPSIN_HIS; 1.

PROSITE; PS00135; TRYPSIN_SER; 1.
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Signal; Zymogen; EGF-]
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MISCELLANEOUS:
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PTM: THE ACTIVATION PEPTIDE IS CLEAVED BY I
INTRINSIC PATHWAY), OR BY FACTOR VIIA (IN 5
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PF000594; gla; 1.
PF00089; trypsin; 1.
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ACTIVATED FACTOR XA, HEAVY CEGF-LIKE 1, CALCIUM-BINDING EGF-LIKE 2.
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FACTOR X LIGHT CHAIN.
FACTOR X HEAVY CHAIN.
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J. Biol.
[2]
 STRUCTURE OF CARBOHYDRATE ON SER-52.

MEDILINE-91344709; PubMed-2129367;

IWANBUG S., Nishimura H., Kawabata S., Kisiel W., Hase S., Ikenaka T.;

"A new trisaccharide sugar chain linked to a serine residue in the

first EGF-11ke domain of clotting factors VII and IX and protein Z.";

Adv. EXP. Med. Biol. 281:121-131(1990).

-1- FUNCTION: CIRCULATES IN THE BLOOD IN A ZYMOGEN FORM. FACTOR VII IS

CONVERTED TO FACTOR VIIA BY FACTOR XA, FACTOR S. ACTOR

THROMBISIN BY MINOR PROTEDLYSIS. IN THE PRESENCE OF TISSUE FACTOR XA

AND CALCIUM IONS, FACTOR VIIA THEN CONVERTS FACTOR X TO FACTOR XA
                                                                                                                                                                                                      STRUCTURE OF CARBOHYDRATE ON SER-52.

MEDLINE-89213999; PubMed-3149637;
Hase S., Kawabata S., Nishimura H., Takeya H., Sueyoshi
Miyata T., Iwanaga S., Takao T., Shimonishi Y., Ikenaka
"A new trisaccharide sugar chain linked to a serine resi
blood coagulation factors VII and IX.";
J. Blochem. 104:867-868(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bos taurus (Bovine)
Eukaryota; Metazoa; Ch
Mammalia; Eutheria; Ce
Bovidae; Bovinae; Bos
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                                                                                                                                                                                                                                                                                                                                                                                           "Bovine factor VII. Its
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17; Conser
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(Rel. 1)
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ta S., Nakagawa
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38.6%;
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Last annotation update)
I (EC 3.4.21.21) (SERUM PROTHROMBIN
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Pred. No. 4.7e
10; Mismatches
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InterPro; IPR000294; ...
InterPro; IPR000254; ...
InterPro; IPR000254; ...
InterPro; IPR001344; ...
InterPro; IPR001314; ...
InterPro; IPR001383; ...
InterPro; IPR001881; ...
InterPro; IPR00008; EGF; 2.
Pfam; PF00008; EGF; 2.
Pfam; PF00099; trypsin; 1.
Pfam; PF00099; trypsin; 1.
Pfam; PF00099; trypsin; 1.
PFANTS; PR00010; EGFBLOOD.
PRINTS; PR00010; EGFBLOOD.
PRINTS; PR00011; EGFLCARBOXYLATION; 1.
PROSITE; PS00011; GLUCARBOXYLATION; 1.
PROSITE; PS000135; TRYPSIN_SER; 1.
PROSITE; PS00136; TRYPSIN_SER; 1.
PROSITE; PS001187; EGF_2; 2.
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- SIMILARITY: BELONGS TO TRYPSIN FAMILY.
R; A31979; A31979.
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GLUTAMIC
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   VITAMIN K-DEPENDENT, ACID RESIDUES ALLOWS
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EGF-LIKE 1,
EGF-LIKE 2.
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BY LIMITED PROTEOLYSIS. FACTOR VIIA WILL ALSO CONVERT FACTOR FACTOR IXA IN THE PRESENCE OF TISSUE FACTOR AND CALCIUM. CATALYTIC ACTIVITY: HYDROLYSES ONE ARG-|-ILE BOND IN FACTOR X HEAVY CHAIN LINKED X ö o.

ENZYMATIC CARBOXYLATION OF SOME THE MODIFIED PROTEIN TO BIND

ALSO KNOWN AS

e; Blood coagulation; Zymogen; Glycoprotein; Calcium-binding; Gamma-carboxyglutamic acid;

CATALYTIC.
CLEAVAGE (BY FACTOR XA, CALCIUM-BINDING CHAIN. (POTENTIAL)

THROMBIN) FACTOR XIIA,

SIMILARITY).

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Best Local :
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                                                                                                                                                                                                                                                              nine different species.",
Proc. Natl. Acad. Sci. U.S.A. 89:2779-2783(1992).
FIBRINGGEN TO FIBRIN AND ACTIVATES FACTORS V, VII, VIII, XIII,
AND, IN COMPLEX WITH THROMBOMODULIN, PROTEIN C.
AND, IN COMPLEX WITH THROMBOMODULIN, PROTEIN C.
RESULT FROM THE CARBOXYGLUTAMYL RESIDUES BY A MICROSOMAL ENZYME, THE VITAMIN K-DEPENDENT CARBOXYLASE. THE MODIFIED RESIDUES
ARE NECESSARY FOR THE CA-DEPENDENT INTERACTION WITH A NEGATIVELY
CHARGED PHOSPHOLIPID SURFACE, WHICH IS ESSENTIAL FOR THE CONVERSION
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01-NOV-1990
01-NOV-1997
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CARBOHYD
SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOD_RES
CARBOHYD
                      This SWISS-PROT entry is copyright. It is produced through a collal between the Swiss Institute of Bioinformatics and the EMBL outsi the European Bioinformatics Institute. There are no restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa;
Mammalia; Eutheria;
NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                                                                      amplification and sequence analysis
                                                                                                                                                                                                                                                                                                                                                                                                                 Banfield D.K., Macgillivray R.T.; Partial characterization of vertebrate
                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=92212913; PubMed=1557383;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROTHROMBIN
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                                                                                          BY FACTOR XA SIMILARITY:
                                                                                                                                THROMBIN.
- MISCELLANEOUS: 'FRAGMENT (FRAGMINE)
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                                                                                                                                                                        OF PROTHROMBIN TO THROMBIN.

MISCELLANEOUS: PROTHROMBIN IS ACTIVATED ON THE SURFACE OF A MISCELLANEOUS: PROTHROMBIN IS ACTIVATED ON THE SURFACE OF A PHOSPHOLIPID MEMBRANE THAT BINDS THE AMINO END OF PROTHROMBIN & FACTORS VA & XA IN CA-DEPENDENT INTERACTIONS; FACTOR XA REMOVES THE ACTIVATION PROFILE & CLEAVES THE REMAINING PART INTO LIGHT & HEAVY CHAINS. THE ACTIVATION PROCESS STARTS SLOWLY BECAUSE FACTOR VITSELF HAS TO BE ACTIVATED BY THE INITIAL, SMALL AMOUNTS OF
                                                                               TRYPSIN FAMILY.
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16, Last sequence update)
35, Last annotation updat
RRSOR (EC 3.4.21.5).
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Rodentia;
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N-LINKED (GLCNAC. . .).
N-LINKED (GLCNAC. . .).
N-LINKED (GLCNAC. . .).
W; 703E1FE0636F7F10 CRC64;
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of thrombin
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Pfam; PROVOCOT; GLABLOOD.

PRINTS; PRO0001; KRINGLE.

PRINTS; PR00018; KRINGLE.

PROSITE; PR00722; CHYMOTRYPSIN.

R PROSITE; PS00011; GLU_CARBOXYLATION; 1.

R PROSITE; PS000134; TRYPSIN_HIS; 1.

PROSITE; PS00134; TRYPSIN_HIS; 1.

PROSITE; PS00135; TRYPSIN_SER; 1.

PROSITE; PS00135; TRYPSIN_SER; 1.

PROSITE; PS00135; TRYPSIN_SER; 1.
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SIGNAL
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Pfam; PF00594; gla; 1.
Pfam; PF00051; kringle; 2.
Pfam; PF00089; trypsin; 1.
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                                     DISULFID
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IPR001254;
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Zymogen; Gamma-carboxyglutamic acid; Acute phase; Liver;
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CLEAVAGE (BY FACTOR XA).
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CLEAVAGE (BY FACTOR XA).
CHARGE RELAY SYSTEM (BY SIMILARITY).
GAMMA-CARBOXYGLUTAMIC ACID.
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N-LINKED (GLCNAC...) (
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BY SIMILARITY
INTERCHAIN (BY SIMIL
BY SIMILARITY
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CLEAVAGE (BY
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THROMBIN HEAVY CHAIN (B).
KRINGLE 1.
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     CRC64;
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Query Match

41.2%;

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82

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RESULT 13
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Matches 18; Conser
                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboratio between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on it use by non-profit institutions as long as its content is in no was modified and this statement is not removed. Usage by and for commercia entitles requires a license agreement (See http://www.isb-sib.ch/announce or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=92212913; PubMed=1557383;
Banfield D.K., Macgilllvray R.T.;
"Partial characterization of vertebrate prothrombin cDNAs:
amplification and sequence analysis of the B chain of thrombin
nine different species.";
Proc. Natl. Acad. Sci. U.S.A. 89:2779-2783(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN-C57BL/6; TISSUE-Liver;

MEDLINE-91025551; PubMed-222810;

Friezner Degen S.J., Schaffer L.A., Jamison C.S., Grant S.G.,

Fitzgibbon J.J., Pai J.-A., Chapman V.M., Elliott R.W.;

"Characterization of the cDNA coding for mouse prothrombin and localization of the gene on mouse chromosome 2.";

DNA Cell Biol. 9:487-498(1990).
EMBL; X52308; CAA36548.1; -. EMBL; M81394; AAA40435.1; -. PIR; A35827; A35827.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     -
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1990 (Rel. 16,
01-NOV-1990 (Rel. 16,
30-MAY-2000 (Rel. 39,
PROTHROMBIN PRECURSOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                THRB_MOUSE P19221;
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                                                                                                                                                                                                                                                                 FRAGMENT (FRAGMENT 1) OF
BY FACTOR XA.
SIMILADTE:
                                                                                                                                                                                                                                                                                                                                                 OF PROTHROMBIN TO THROMBIN.

OF PROTHROMBIN IS ACTIVATED ON THE SURFACE OF A MISCELLANEOUS: PROTHROMBIN IS ACTIVATED ON THE SURFACE OF A PHOSPHOLIPID MEMBRANE THAT BINDS THE AMINO END OF PROTHROMBIN & FACTORS OF A & XA IN CA-DEPENDENT INTERACTIONS; FACTOR XA REMOVES THE ACTIVATION PROPERS THE REMAINING PART INTO LIGHT & HEAVY CHAINS. THE ACTIVATION PROCESS STARTS SLOWLY BECAUSE FACTOR V ITSELF HAS TO BE ACTIVATED BY THE INITIAL, SMALL AMOUNTS OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C. Natl. Acad. Sci. U.S.A. 89:2779-2783(1992).

CUNCTION: THROMBIN, WHICH CLEAVES BONDS AFFER ARG & LYS, CONVERTS FIBRINGEN TO FIBRIN AND ACTIVATES FACTORS V, VII, VIII, XIII, AND, IN COMPLEX WITH THROWBOMODULIN, PROTEIN C. PTM: THE GAMMA-CARBOXYGLUTAMYL RESIDUES, WHICH BIND CALCIUM IONS, RESULT FROM THE CARBOXYGLUTAMYL RESIDUES BY A MICROSOMAL ENZYME, THE VITAMIN K-DEPENDENT CARBOXYLASE. THE MODIFIED RESIDUES ARE NECESSARY FOR THE CA-DEPENDENT INTERACTION WITH A NEGATIVELY CHARGED PHOSPHOLIPID SURFACE, WHICH IS ESSENTIAL FOR THE CONVERSION
                                                                                                                                                                                                                                            SIMILARITY: CONTAINS SIMILARITY: BELONGS T
                                                                                                                                                                                                                                                                                                                     THROMBIN.
MISCELLANEOUS:
                                                                                                                                                                                                                            TRYPSIN FAMILY.
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7; Mismatches 19
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InterPro; IPR000294; -.
InterPro; IPR001254; -.
InterPro; IPR001314; -.
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S; PRO0018; KRINGLE.
S; PRO0722; CHYMOTRYPSIN.
TE; PS00011; GLU_CARBOXYLATION; 1
TE; PS00021; KRINGLE_1; 2.
TE; PS00013; TRYPSIN_HIS; 1.
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PS50070; KRINGLE_2; 2.
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CLEAVAGE (BY FACTOR XA)
CLEAVAGE (BY FACTOR XA)
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CLARGE RELAY SYSTEM (BY
CHARGE CARBOXYGLUTAMIC AY
GAMMA-CARBOXYGLUTAMIC AY
GAMMA-CARB
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BY SIMILARITY,
BY SIMILARITY,
BY SIMILARITY,
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Score 82.5; DB 1;
Pred. No. 3.7e-06;
7; Mismatches 19
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InterPro; IPR001791; ...
InterPro; IPR001881; ...
InterPro; IPR001881; ...
Pfam; PF000008; EGF; 4.
Pfam; PF000594; gla; 1.
Pfam; PF000594; laminin_G; 1.
Pfam; PF00110; ASX_HYDROXYL; 4.
PROSITE; PS00011; GLU_CARBOXYLATION; 1.
PROSITE; PS00112; GEF_1; 1.
PROSITE; PS01186; EGF_2; 3.
PROSITE; PS01187; EGF_CA; 3.
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Q1-NOV-1997
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -!- SUBCELLULAR LOCATION: EXTRACELLULAR.
-!- TISSUE SPECIFICITY: PLASMA.
-!- SIMILARITY: CONTAINS 2 LAMININ G-LIKE DOMAINS.
-!- SIMILARITY: CONTAINS 4 EGF-LIKE DOMAINS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Greengard J.S., Fernandez J.A., Radtke K.P., Griffin J.H.;
"Identification of candidate residues for interaction of protein
with C4b binding protein and activated protein C.";
Biochem. J. 305:397-403(1995).

BIOCHEM. J. 15 HELP TO PREVENT COAGULATION AND STIMULATING

AND VIIIA. IT HELP TO PREVENT COAGULATION AND STIMULATING
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Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Mammalia; Eutheria; Primates; Catarrhini; Cercopithe
                                                                                                                                      DOMAIN
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NCBI_TaxID=9544;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | IPR000152; -... | IPR000294; -... | IPR000561; -... | IPR001791; -... | IPR001881; -...
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EGF-LIKE 4. CALCIUM-BINDING ()

EGAMMA-CARBOXYGLUTAMIC ACID (B)

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ion; Glycoprotein;
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Best Local
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MEDLINE-91084444; PubMed-2148110;
Schmidel D.K., Tatro A.V., Phelps L.
"Organization of the human protein S
Biochemistry 29:7845-7852(1990).
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DISULFID
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Eukaryota; Metazoa;
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  SEQUENCE OF 27-676 FROM N.A. MEDLINE=91084445; PubMed=214
                                                                                                                                  SEQUENCE FROM
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                                                               Amstel H.K.
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  PubMed=2148111;
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Primates;
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GAMMA-CARBOXYGLUTAMIC SIMILARITY).
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MEDLINE-94129009; PubMed-8298131; Hayashi T., Nishioka J., Shigakiyo T., Saito S., Suzuki K.; Hayashi T., Nishioka J., Shigakiyo T., Saito S., Suzuki K.; Prottein S Tokushima: abnormal molecule with a substitution of Glu for Lys-155 in the second epidermal growth factor-like domain of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sequences
FEBS Lett.
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"Intron-exon organization
and its pseudogene PS beta
evolution.";
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between
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                                                                                                                                                      use by non-profit institutions as long modified and this statement is not removed. entitles requires a license agreement (See or send an email to license@isb-sib.ch).
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to dimorphism of residue
Blood 76:538-548(1990).
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MEDLINE-90335440; Pu
Bertina R.M., Ploos
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                                                                                                                                                                                                                                                                 the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cooper D.N.;
Unpublished observations
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Proc. Natl. Acad.
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MEDLINE-87092407;
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Stenflo J., Wydro R.;
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A;Contents: annotation; beta-hydroxyaspartic acid C;Comment: Protein C is the zymogen of the vitamin K-dependent serine proteinase that ivation of factor Va is strongly enhanced by complexing with protein S. Protein C als	A;Title: O-linked fucose is present in the first epidermal growth factor domain of fa A;Reference number: A44606; MUID:92184750	A:Note: the alpha form of protein C is glycosylated at Asn-329, and the beta form is R:Harris, R.J.; Ling, V.T.; Spellman, M.W.	A;Reference number: A44605; MUID:90293094 A;Contents: annotation; carbohydrate binding sites; activation peptide	J. Biol. Chem. 265, 11397-11404, 1990 A; Title: Beta protein C is not glycosylated at asparagine 329. The rate of translatio	A;Cross-references: GB:X02750; NID:g35689; PIDN:CAA26528.1; PID:g763120 R;Miletich, J.P.; Broze Jr., G.J.	A; Residues: 1-461 <bec></bec>	A; Accession: A23789	A;Title: The structure and evolution of a 461 amino acid human protein C precursor an A:Reference number: A23789: MUID:85269639	R; Beckmann, K.J.; Schmidt, K.J.; Santerre, K.F.; Fiutzky, J.; Crabtree, G.K.; Long, G Nucleic Acids Res. 13, 5233-5247, 1985	NID:g190322; PIDN:AAA60164.1; PID:g190323	A; Residues: 'Q',107-461 <fos2></fos2>	A; Accession: A27/81	A;Reference number: A21781; MUID:84272714	Proc. Natl. Acad. Sci. U.S.A. Bl. 4/55-4/7/, 1994 A:Title: Characterization of a cDNA coding for human protein C.	R; Foster, D.; Davie, E.W.	A; Cross references: GB:M12712; NID:g190330; PIDN:AAA60165.1; PID:g190332	A: Molecule type: DNA	A; Accession: A25426	A; Fitle: Evolution and organization of the numan protein C gene.  A; Reference number: A25426; MUID:86120978	Proc. Natl. Acad. Sci. U.S.A. 83, 546-550, 1986	A;Cross-references: GB:ML1228; NLU:g190333; PLUN:AAABULBB.1; PLU:g190334 R;Plutzky, J.; Hoskins, J.A.; Long, G.L.; Crabtree, G.R.	A; Residues: 1-461 <fos1></fos1>	A;Accession: A22331 A;Molecule type: DNA	A; Title: The nucleotide Sequence of the gene for numan protein C. A; Reference number: A22331; MUID:85270390	1985	R; FOSTEY, D.C.; Yoshitake, S.; Davie, E.W.	C:Date: 17-Mar-1987 #sequence_revision 17-Mar-1987 #text_change 16-Jul-1999 C:Accession: A22331: A25426: A21781: A23789: A00927	N;Alternate names: autoprothrombin IIA; plasma protein C C;Species: Homo sapiens (man)	protein C (activated) (EC 3.4.21.69) precursor - human	RESULT 1

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F:200-461/Product: protein C heavy chain *status predicted <HCH>
F:200-21/Domain: activation peptide *status experimental <APT>
F:212-445/Domain: trypsin homology <TRY>
F:48,49,56,58,61,62,67,68,71/Modified site: gamma-carboxyglutamic acid F:59-64,92-105,101-120,122-131,140-151,147-160,162-175,183-319,238-254, F:106-111/Dsulfide bonds: *status predicted F:110/Binding site: carbohydrate (Thr) (covalent) *status absent F:113/Modified site: erythro-beta-hydroxyaspartic acid (Asp) *status exper F:131,290,355/Binding site: carbohydrate (Asn) (covalent) *status exper F:211-212/Cleavage site: Arg-Leu (thrombin) *status exper F:211-212/Cleavage site: His, Asp, Ser *status predicted F:253,299,402/Active site: His, Asp, Ser *status predicted F:253,299,402/Active site: Arg-Leu (thrombin) *status experimental final *status experimental final *status exper F:211-212/Cleavage site: His, Asp, Ser *status predicted F:253,299,402/Active site: Arg-Leu (Asn) (covalent) *cartisl *status exper F:251.810/Hinding site: carbohdrate (Asn) *covalent) *cartisl *cartisl *cartisl *status exper F:251.810/Hinding site: carbohdrate (Asn) *covalent)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Cross-references: GB:D10445; NID:9220385; PIDN:BAA01235.1; PID:9220386 A;Experimental source: liver C;Comment: Protein C is the zymogen of the vitamin K-dependent serine now
                           F;212-445/Domain: trypsin homology <TRY>
F;47,48,55,57,60,61,66,67,70,76/Modified site: gamma-carboxyglutamic acid (Glu) #status
F;112/Modified site: erythro-beta-hydroxyaspartic acid (Asp) #status predicted
F;121-130,139-150,146-159,161-174,182-319,238-254,373-387,398-426/Disulfide bonds: #stat
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F;43-197/Product: protein C light chain *status predicted <LCH>
F;92-131/Domain: EGF homology <EG1>
F;140-175/Domain: EGF homology <EG2>
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C;Superfamily: coagulation factor X; EGF homology; Gla domain homology; trypsin homology;
C;Keywords: anticoagulant; beta-hydroxyvaspartic acid; blood coagulation; calcium binding
F;1-32/Domain: signal sequence #status predicted <SIG>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: mRNA
A; Residues: 1-461 <TAD>
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A; Introns: 24/1; 79/3; 88
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bin, which cleaves
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Title: Isolation and characterization of a mouse protein C cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein C (activated) (EC 3.4.21.69) precursor - mouse
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Reference number: JX0210; MUID:92316897
                                                                                                                                                                             ';44-4/Domain: propeptide #status predicted <PRO>
';44-196,199-461/Product: protein C #status predicted <PRC>
';42-196/Domain: light chain #status predicted <PCL>
';91-30/Domain: EGF homology <EG1>
';139-174/Domain: EGF homology <EG1>
';139-174/Domain: heavy chain #status predicted <PCH>
';199-461/Domain: heavy chain #status predicted <PCH>
';199-211/Domain: activation peptide #status predicted <ACT>
';212-461/Product: vitamin K-dependent serine proteinase #sti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Species: Mus musculus (house mouse); Species: Mus musculus (house mouse); Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 16-Jun-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                    Alternate
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Best Local :
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
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       site:
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S18994
A; Reference number: A; Accession: A26250
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N; Alternate names: autóprothrombin IIA; plasma protein C (Species: Bos primigenius taurus (cattle) C; Species: Bos primigenius taurus (cattle) C; Date: 30-Nov-1980 #sequence_revision 17-Mar-1987 #text_change 16-Jul-1999 C; Accession: A26250; A18385; A18386; A00928 R. Long, G.L.; Balagaje, R.M.; MacGillivray, R.T.A. Proc. Matl. Acad. Sci. U.S.A. 81, 5653-5656, 1984 A; Title: Cloning and sequence of liver cDNA coding for bovine protein C. A; Reference number: A26250; MUID:85014826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  F;139-174/Domain: EGF homology <EG2>
F;213-445/Domain: trypsin homology <TRY>
F;213-445/Domain: trypsin homology <TRY>
F;417,48,55,57,60,61,66,67,70,76/Modified site: gamma-carboxyglutamic acid (Glu) #stat
F;112/Modified site: erythro-beta-hydroxyaspartic acid (Asp) #status predicted
F;121-130,139-150,146-159,161-174,182-320,239-255,373-387,398-426/Disulfide bonds: #s
F;215,291,355/Binding site: carbohydrate (Asn) (covalent) #status predicted
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C;Superfamily: coagulation factor X; EGF homology; Gla domain h
C;Keywords: beta-hydroxyaspartic acid; glycoprotein; hydrolase;
F;1_32/Domain: signal sequence #status predicted <SIG>
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R;Okafuji, T.; Maekawa, K.; Nawa, K.; Marumoto, Y.
submitted to the EMBL Data Library, February 1992
A;Description: The cDNA cloninig and mRNA expressi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  F;33-42/Domain: propeptide #status predicted <PRO>F;43-461/Product: protein C #status predicted <PRC: F;91-130/Domain: EGF homology <EG1>
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C; Species: Rattus norvegicus (Norway rat)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     F;253,299,402/Active site: His, Asp,
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A;Residues: 1-461 <OKA2>
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A; Residues: 1-461 <OKA>
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A;Accession: S18994
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28; Conservative
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63.6%;
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othrombin IIA; plasma protein C
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Pred. No. 4.3e-
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Pred. No. 3e-16;
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C;Comment: The gamma-carboxyglutamic acid residues arise by a posttranslational, vitamin C;Comment: The gamma-carboxyglutamic acid residues arise by a posttranslational, vitamin C;Supperfamily: coagulation factor X; EGF homology; Gla domain homology; trypsin homology; C;Keywords: anticoagulant; beta-hydroxyaspartic acid; blood coagulation; calcium binding F;1-29/Domain: slgnal sequence (fragment) #status predicted <SIG>
F;24-83/Domain: propeptide #status predicted <PRO>
F;30-39/Domain: propeptide #status predicted <PRO>
F;40-194/Product: protein C light chain #status experimental <LCH>
F;98-128/Domain: EGF homology <EGI>
F;197-45/Product: protein C heavy chain #status experimental <HCH>
F;197-45/Product: protein C heavy chain #status experimental <APT>
F;211-440/Domain: activation peptide #status experimental <APT>
F;45,46,53,55,58,59,62,64,65,68,74/Modified site: gamma-carboxyglutamic acid (Glu) #status experimental site: erythro-beta-hydroxyaspartic acid (Asp) #status experimental f;110/Modified site: erythro-beta-hydroxyaspartic acid (Asp) #status predicted experimental site: carbohydrate (Asn) (Covalent) #status predicted experimental exper
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g. C;Comment: Protein C is synthesized in the liver as a single chain precursor, which is obin, which cleaves a tetradecapeptide from the amino end of the heavy chain; this react: C;Comment: Calcium binds to the gamma-carboxyglutamic acid (Gla) residues and, with strongalition of the thrombin-thrombomodulin complex.
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J. Biol. Chem. 258, 5548-5553, 1983
A;Title: Proteolytic formation and properties of gamma-carboxyglutamic acid-domainless A;Reference number: A37541; MUID:83213513
A;Contents: annotation; activation; calcium binding
A;Contents: annotation; A.L.; Laue, T.M.; Esmon, C.T.
J. Biol. Chem. 258, 5554-5560, 1983
A;Title: Structural changes required for activation of protein C are induced by Ca2+ bi A;Reference number: A37542; MUID:83213514
A;Contents: annotation; activation; calcium binding
C;Comment: Protein C is the zymogen of the vitamin K-dependent serine proteinase that r
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A;Title: beta-Hydroxyaspartic acid in vitamin K-dependent protein A;Reference number: A19316; MUID:83169769
coagulation factor Xa (EC 3.4.21.6) precursor C;Species: Rattus norvegicus (Norway rat) C;Date: 31-Jan-1995 #sequence_revision 07-Feb-19 C;Accession: S49075; JC4670; PS0191; PS0190; I62
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A; Residues: 1
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Best Local S
Matches 23
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Chem. 2
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23; Conser
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54.8%;
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                                           07-Feb-1997 #text_change
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RESULT

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F:24-40/Domain: propeptide #status predicted <PRO>
F:25-84/Domain: Gla domain homology <GLA>
F:41-179/Product: coagulation factor X light chain #status predicted <LCH>
F:90-121/Domain: EGF homology <EG1>
F:129-164/Domain: EGF homology <EG2>
F:129-164/Domain: EGF homology <EG2>
F:183-482/Product: coagulation factor X heavy chain #status predicted <HCH>
F:183-231/Domain: activation peptide #status predicted <APT>
F:232-460/Product: coagulation factor Xa heavy chain #status predicted <ACT>
F:232-460/Product: coagulation factor Xa heavy chain #status predicted <ACT>
F:232-460/Product: coagulation factor Xa heavy chain #status predicted <ACT>
F:232-460/Product: coagulation factor Xa heavy chain #status predicted <ACT>
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F:232-460/Product: coagulation factor Xa heavy chain #status predicted <ACT>
F:232-460/Production factor Xa heavy chain #status predicted <ACT>
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A:Residues: 183-186, "X ,188-207 <ENJ2>
A:Residues: 183-186, "X ,188-207 <F.; Kuroiwa, M.;
R:Murakawa, M.; Okamura, T.; Kamura, T.; Kuroiwa, M.;
Eur. J. Haematol. 52, 162-168, 1994
A:Title: Analysis of the partial nucleotide sequences
A:Reference number: 146196; MUID:94222160
A:Accession: 162745
A:Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                             F:232-460/Domain: trypsin homology <TRY>
F:46.47.54.56.59.60.65.66.69.72.79/Modified site: gamma-carboxyglutamic acid (Glu) #s
F:57-62.90-101.95-110.112-121.129-140.136-149.151-164.172-340.238-243.259-275.388-402
F:103/Modified site: erythro-beta-hydroxyaspartic acid (Asp) #status predicted
F:187/Binding site: carbohydrate (Asn) (covalent) #status experimental
F:208/Binding site: carbohydrate (Th) (covalent) #status predicted
F:218/Binding site: carbohydrate (Asn) (covalent) #status predicted
F:218/Binding site: carbohydrate (Asn) (covalent) #status predicted
F:231-32/Cleavage site: Arg-Ile (coagulation factor IXa, coagulation factor VIIa) #s
F:274.320.417/Active site: His, Asp, Ser #status predicted
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A;Residues: 295-383,'G',385-455 <MUR>
A;Cross-references: GB:D21215; NID:g415309; PIDN:BAA04756.1;
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A;Title: Processing and expression of rat and human
A;Reference number: JC4670; MUID:96194815
A;Accession: JC4670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Reference number: A58498; MUID:96093366 A;Accession: S49075
    밁
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A; Residues: 1-482 <STA2>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   J. Biochem. 109, 890-898, 1991
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                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                            Matches
41
                                                                          1 ANSFLXXLRHgSLXRXCIXXICDFXXAKXIFQNVDDTLAFWSKH 44
                                                                                                                                                        l Similarity
17; Conser
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0, 63-73, 1
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1995
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38.6%;
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                                                                                                                                                    Score 105; DB
Pred. No. 2.6e
l1; Mismatches
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                                                                                                                                                                                             DB 1;
.6e-09;
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A;Molecule type: protein
A;Residues: 183-292,294-295,'GDE',299-334,336-348,'AE',351-354,356-441,'GKFG',446-492 <7
A;Residues: 183-292,294-295,'GDE',299-334,336-348,'AE',351-354,356-441,'GKFG',446-492 <7
A;Rote: carbohydrate binding sites and disulfide bonds were determined
R;Persson, E.; Selander, M.; Linse, S.; Drakenberg, T.; Oehlin, A.K.; Stenflo, J.
J. Biol. Chem. 264, 16897-16904, 1989
A;Title: Calcium binding to the isolated beta-hydroxyaspartic acid-containing epidermal
A;Reference number: A34412; MUID:89380326
A;Accession: A34412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C;Species: Bos primigenius taurus (cattle)
C;Date: 24-Apr-1984 #sequence_revision 17-Mar-1987 #text_change 16-Jul-1999
C;Accession: A22867; A14997, A12030; A34412; S39414; A00925
R;Fung, M.R.; Campbell, R.M.; MacGillivray, T.A.
Nucleic Acids Res. 12, 4481-4492, 1994
A;Title: Blood coagulation factor X mRNA encodes a single polypeptide chain containing A;Reference number: A22867; MUID:84247315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Molecule type: protein
A;Residues: 41-102,'N',104-180 <ENF>
R;McMullen, B.A.; Fujikawa, K.; Kisiel, W.
Biochem. Biophys. Res. Commun. 115, 8-14, 1983
A;Title: The occurrence of beta-hydroxyaspartic acid in
A;Reference number: A20274; MUID: 83308813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Title: Amino acid sequence of the light chain of bovine factor X-1 A;Reference number: A14997; MUID:80130563
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C;Superfamily: coagulation factor X; EGF homology; Glaor; 24-83/Domain: Gla domain homology <GLA>F;24-83/Domain: EGF homology <EG1>F;89-120/Domain: EGF homology <EG1>F;130-166/Domain: EGF homology <EG2>
   A; Note:
                               A; Molecule type:
A; Residues: 85-1:
                                                                                                                                                                                                                                                                                                                                                                    A;Reference number: A12030; MUID:76053069
A;Accession: A12030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Contents: annotation; revision to residue 103
R;Titani, K.; Fujikawa, K.; Enfield, D.L.; Ericsson, L.H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Cross-references: GB:X00673; NID:g192; PIDN:CAA25286.1; PID:g193 R;Enfield, D.L.; Ericsson, L.H.; Fujikawa, K.; Walsh, K.A.; Neurat: Biochemistry 19, 659-667, 1980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             coagulation factor Xa (EC 3.4.21.6) precursor - N;Alternate names: Stuart factor
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                                                                                                                                                                                                                                                                                                                                                                                                                                   Proc. Natl. Acad. Sci. U.S.A. 72, 3082-3086, 1975
A;Title: Bovine factor X-1 (Stuart factor): amino-acid sequence of heavy chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: mRNA
A; Residues: 1-487 <FUN>
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A; Residues: 1-443 <BRO>
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C;Date: 04-Sep-1997 #sequence_revision 04-Sep-1997 #text_change 12-Feb-1999
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beta-hydroxyaspartic
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Pred. No. 3.5e-09;
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RESULT EXHU

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J. Biol. Chem. 259, 5705-5710, 1984
A;Title: Calcium-binding properties of bovine factor X lacking the gamma-carboxyglus
A;Reference number: A38024; MUID:84185716
A;Contents: annotation; calcium binding
R;Morita, T.; Jackson, C.M.
J. Biol. Chem. 261, 4008-4014, 1986
A;Reference number: A38025; MUID:86140210
A;Contents: annotation; sulfate binding
C;Comment: Factor Xa converts prothrombin to thrombin during blood clotting.
C;Comment: The two chains are formed from a single-chain precursor by the excision of the contents. The activation peptide is cleaved by factor IXa (in the intrinsic pathware)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 F;16-40/Domain: propeptide #status predicted <PRO>
F;25-84/Domain: Gla domain homology <GLA>
F;41-180/Product: coagulation factor X light chain #status experimental <LCH>
F;90-121/Domain: EGF homology <EG1>
F;129-164/Domain: EGF homology <EG2>
F;183-492/Product: coagulation factor X heavy chain #status experimental <HCH>
F;183-233/Domain: activation peptide #status experimental <APT>
F;183-233/Domain: activation factor X heavy chain #status experimental <AHC>
F;234-461/Domain: trypsin homology <TRY>
F;234-461/Domain: trypsin homology <TRY>
F;234-461/Domain: trypsin homology <TRY>
F;34-461/Domain: trypsin homology <TRY>
F;36,40,15,59,60,65,66,69,72,75,79/Modified site: gamma-carboxyglutamic acid (Glu)
F;57-62,90-101,95-110,112-121,129-140,136-149,151-1643/72-341/Disulfide bonds: #statu
                                                                                                                                                                                                                                                                                                                                F;218/Binding site: carbohydrate (Asn) (covalent) *status experimental F;233-234/Cleavage site: Arg-Ile (coagulation factor IXa, coagulation factor VIIa) F;240-245,260-276,389-403,414-442/Disulfide bonds: *status experimental F;275,321,418/Active site: His, Asp, Ser *status predicted
В
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C;Keywords: beta-hydroxyaspartic acid; blood coagulation; calcium F;1-15/Domain: signal sequence #status predicted <SIG>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Description: catalyzes the proteolytic activation of prothrombin to thrombin in the A;Pathway: blood coagulation 
C;Superfamily: coagulation factor X; EGF homology; Gla domain homology; trypsin homol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C; Comment: Calcium binds to the gamma-carboxyglutamic acid (Gla) residues and, with s C; Comment: The gamma-carboxyglutamic acid residues arise by a posttranslational, vita
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R;Fujikawa, K.; Titani, K.; Davie, E.W.
Proc. Natl. Acad. Sci. U.S.A. 72, 3359-3363, 1975
A;Title: Activation of bovine factor X (Stuart factor):
A;Reference number: A13504; MUID:76053121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C; Function:
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A; Title: Bovine factor X-la (activated Stuart factor).
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A; Residues: 183-196;199-209;216-233 <INO>
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A; Title: Identification of O-linked oligosaccharide
A; Reference number: S39414; MUID:94062825
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Best Local
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ANSFLEEVKQGNLERECLEEACSLEEAREVFEDAEQTDEFWSKY
                                                                                                                                                  l Similarity
17; Conserv
                                                                                                                                                      Conservative
                                                                                                                                                                                      50.5%;
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Pred. No. 1.2e-08;
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A:Cross-reservation A:Cross-reservation A:Cross-reservation A:Cross-reservation A:Risier, A:Cross-reservation A:Risier, A:Risi
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A;Title: Cloning and expression in COS-1 call construction of the construction of t
                                                                                                                                                                                                                                                                                                                     R:Inoue, K.; Morita, T.
Eur. J. Blochem. 218, 153-163, 1993
A:Title: Identification of O-linked oligosaccharide chains
A:Reference number: S39414; MUID:94062825
A:Recession: S39415
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C;Date: 15-Nov-1984 #sequence_revision 02-May-1994 #text_change 08-Dec-2000 C;Accession: A24478; JQ0917; A42485; A25833; A22208; A21284; A20362; S39415; R;Leytus, S.P.; Foster, D.C.; Kurachi, K.; Davie, E.W.
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A; Residues: 19-284, 'E', 289-488 <KAU>
A; Cross-references: GB:M22613; NID:g180335; PIDN:AAA51984.1;
A; Cross-references: GB:M22613; NID:g180335; PIDN:AAA51984.1;
R; Fung, M.R.; Hay, C.W.; MacG1111vray, R.T.A.
Proc. Natl. Acad. Sci. U.S.A. 82, 3591-3595, 1985
A; Title: Characterization of an almost full-length cDNA codir
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                                                                                                                                       A; Note: glycosylation and characterization of beta-hydroxyaspartic acid
                                                                                                                                                                                                                                   A; Molecule type: protein A; Residues: 183-234 < INO>
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A; Residues: 13-284, 'E', 289-488 <LE2>
A; Cross-references: GB; KO1886
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A:Accession: A22208
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A; Residues: 1-488 <MES>
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                                                                                                R; Jagadeeswaran, P.;
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}.; Roberts, S.; Jagadeeswaran, P.
                                                                                           S.V.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                K.; Kisiel, W.; Sasagawa, T.; Howald, W.N.; Kwa, 1983
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A; Residues: 1-23 < RES>
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J. Mol. Biol. 232, 947-966, 199
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17; Conservative
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Coagulation factor VIIa (EC 3.4.21.21) precursor [validated] - human C;Species: Homo sapiens (man) C;Date: 19-May-1999 #sequence_revision 19-May-1994 #text_change 08-Dec-2000 C;Accession: A28822; A28819; A31186; B31186; S63524 R;O'Hara, P.J.; Grant, F.J.; Haldeman, B.A.; Gray, C.L.; Insley, M.Y.; Hager Proc. Natl. Acad. Sci. U.S.A. 84, 5158-5162, 1987 A;Title: Nucleotide sequence of the gene coding for human factor VII, a vita A;Reference number: A28322; MUID:87260948
A; Molecule type: DNA
A; Residues: 1-466 < OHA>
A; Residues: 1-466 < OHA>
A; Cross-references: GB: J02933; NID: g180333; PIDN: AAA51983.1;
A; Hagen, F.S.; Gray, C.L.; O'Hara, P.; Grant, F.J.; Saari, G.
Proc. Natl. Acad. Sci. U.S.A. 83, 2412-2416, 1986
A; Title: Characterization of a CDNA coding for human factor V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  F:183-234/Domain: activation peptide #status experimental <APT>
F:235-468/Product: coagulation factor Xa heavy chain #status experimental <ACT>
F:235-462/Domain: trypsin homology <TRY>
F:46,47,54,56,59,60,65,66,69,72,79/Modified site: gamma-carboxyglutamic acid (Glu) #s F:57-62/Disulfide bonds: #status predicted
F:90-101,95-110,112-121,129-140,136-149,151-164,172-342,241-246,261-277,390-404,415-4
F:103/Modified site: erythro-beta-hydroxyaspartic acid (Asp) #status experimental F:193/Inding site: carbohydrate (Thr) (covalent) #status experimental F:221,231,Binding site: carbohydrate (Thr) (covalent) #status experimental F:234-235/Cleavage site: Arg-Ile (coagulation factor IXa, coagulation factor VIIa) #s
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A;Map position: 13q34-13q34
A;Introns: 24/1; 77/3; B6/1; 124/1; 150/3;
A;Note: deficiency of this factor causes St
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admanabhan, K.P.; Tulinsky, A.; Park, C.H.; Bode, W.
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this factor causes Stuart
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Pred. No. 1.7e-08;
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Cuart disease
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.C.; Woodbur
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                                                                                              Woodbury,
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A; Description: catalyzes the proteolytic activation of coagulation factor X in the prese cagulation factor IX in the presence of calcium and tissue factor

A; Pathway: blood coagulation extrinsic pathway

C; Superfamily: coagulation factor X; EGF homology; Gla domain homology; trypsin homology

C; Keywords: beta-hydroxyaspartic acid; blood coagulation; calcium binding; carboxyglutan

F;1-20, Domain: signal sequence #status predicted <SIG>

F;21-60, Domain: propeptide #status predicted <PRO>

F;21-10, Thomain: GLa domain homology <GLA>

F;61-21, Product: coagulation factor VIIa light chain #status experimental <MAI>
F;110-141, Domain: EGF homology <EGI>
F;131-187, Domai
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F;213-447/Domain: trypsin homology <TRY>
F;6213-447/Domain: trypsin homology <TRY>
F;66,67,74,76,79,80,85,86,89,95/Modified site: gamma-carboxyglutamic acid (Glu) #status F;77-82,110-121,115-130,132-141,151-162,158-172,174-187,195-322,219-224,238-254,370-389, F;112,120/Binding site: carbohydrate (Ser) (covalent) #status experimental F;123/Modified site: erythro-beta-hydroxyaspartic acid (Asp) #status absent F;205,382,2Binding site: carbohydrate (Asn) (covalent) #status experimental F;212-213/Cleavage site: Arg-Ile (coagulation factor XIIa) #status experimental F;253,302,404/Active site: His, Asp, Ser #status predicted F;253,302,404/Active Site: His, Asp, Ser
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A;Title: Structurally and functionally distinct Ca(2+) binding sites in the gamma-carbo:
A;Reference number: S63524; MUID:96096752
A;Accession: S63524
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A;Map position: 13q34-13q34
A;Introns: 22/1; 44/1; 97/3; 106/1; 144/1;
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A;Contents: annotation; carbohydrate binding sites
R;Persson, E.; Petersen, L.C.
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A;Title: Amino acid sequence and posttranslational modifications of human A;Reference number: A90539; MUID:89088153
A;Accession: A31186
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A;Cross-references: GB:M13232; NID:g182799; PIDN:AAA88040.1; PID:g182801
R;Thim, L.; Bjoern, S.; Christensen, M.; Nicolaisen, E.M.; Lund-Hansen,
                                                                                                                                                                                                                                                                                                                                                                                                                                          coagulation factor VIIa (EC 3.4.21.21) -
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A; Residues: 61-65; 99-103; 105-109; 213-217; 308-312
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Ma
Best Loc
Matches
                                                                                                                                                                                                                                                                                                                       Species: Bos primigenius taurus (cattle);Date: 21-May-1990 #sequence_revision 23-Mar-1995 #text_change 16-Jul-1999;Date:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;Genetics:
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Biol Chem. 266, 11051-11057, 1991
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Pred. No. 2.4e-07
5; Mismatches 1
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                                                                                                                        acid sequence
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          A;Note: the authors purified the proenzyme from R;Banfield, D.K.; MacGillivray, R.T.A. Proc. Natl. Acad. Sci. U.S.A. 89, 2779-2783, 199 A;Title: Partial characterization of vertebrate A;Reference number: A42696; MUID:92212913
                                                                                                                                                                                                                                                                                                                                                                   A;Cross-references: EMBL:X52835; NID:g56969; PIDN:CAA37017.1; PID:g56970 R;Henrikson, K.P.; Jazin, E.E.; Greenwood, J.A.; Dickerman, H.W. Endocrinology 126, 167-175, 199 Pip: Greenwood at the estrogen-treated immature A;Title: Prothrombin levels are increased in the estrogen-treated immature A;Reference number: A60576; MUID:90091942 A;Accession: A60576
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                                                                                                                                                                                                                                                                            A; Molecule type: protein A; Residues: 44-58 < HEN>
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A; Residues: 1-617 <DIH>
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A; Accession: S10511
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Title: cDNA sequence of rat prothrombin A; Reference number: S10511; MUID: 90332426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Nucleic Acids Res. 18, 4251, 1990
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
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l Similarity 46.3%;
19; Conservative
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prothrombin

CDNAs:

amplification

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estrogen-stimulated

maturing

rat

immature rat uterus

#text\_change 22-Jun-1999

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gulation factor IX in the presence of calcium and tissue factor A;Bathway: blood coagulation extrinsic pathway: blood coagulation factor X; EGF homology; Gla domain homology; trypsin homol C;Keywords: beta-hydroxysspartic acid; blood coagulation; calcium binding; carboxyglu F;I-152/Product: coagulation factor VIIa light chain #status experimental <MAl> F;1-44/Domain: Gla domain homology (fragment) <GLA> F;50-81/Domain: EGF homology <EGI> F;91-127/Domain: EGF homology <EGG2>
                                                                                                                                                                                                                                                                                                                          F:153-407/Product: coagulation factor VIIa heavy chain #status experimental <MA2>
F:153-487/Domain: trypsin homology <FRY>
F:67,714,16.19.20,25,26,29.34,35/Modified site: gamma-carboxyglutamic acid (Glu) #sta
F:17-22,50-61,55-70,72-81,91-102,98-112,114-127,135-262,159-164,178-194,310-329,340-3
F:22/Binding site: carbohydrate (Ser) (covalent) #status experimental
F:63/Modified site: erythro-beta-hydroxyaspartic acid (Asp) (partial) #status experimental
F:145,203/Binding site: carbohydrate (Asn) (covalent) #status experimental
F:152-153/Cleavage site: Mis. Asp, Ser #status predicted
F:290-291/Cleavage site: Arg-Gly (coagulation factor XiIa) #status experimental
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Title: A new trisaccharide sugar chain linked to a serine residue A;Reference number: A44556; MUID:89213999
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A;Residues: 58-62,'x',64-68 <MCM>
A;Residues: 58-62,'x', 64-68 <MCM>
A;Note: the residue designated 'x' was determined to R;Hase, S.; Kawabata, S.; Nishimura, H.; Takeya, H.;
J. Blochem. 104, 867-868, 1988
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A;Accession: C20274
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R;McMullen, B.A.; Fujikawa, K.; Kisiel, W.
Biochem. Biophys. Res. Commun. 115, 8-14, 1983
A;Title: The occurrence of beta-hydroxyaspartic
                                                                     1 ANSFLXXLRHGSLXRXCIXXICDFXXAKXIFQNVDDTLAFW 41
ANGFLEELLPGSLERECREELCSFEEAHEIFRNEERTRQFW 41
                                                                                                                                           Score 90; DB 1;
Pred. No. 6.4e-07;
3; Mismatches 19
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Sueyoshi, T.; Miyata,
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A;Molecule type: mRNA
A;Residues: 384-618/cf. <br/>
A;Cross-references: GB: M81394
C;Superfamily: thrombin; Gla domain homology; kringle homology; trypsin homology
C;Reywords: blood coagulation; calcium binding; carboxyglutamic acid; glycoprotein; hydr
E;1-24/Domain: signal sequence stratus predicted <SIG>
F;1-24/Domain: signal sequence stratus predicted <PRO>
F;25-43/Domain: Gla domain homology <GLA>
F;44-618/Pordouct: prothrombin B stratus predicted <MAT>
F;44-618/Pordouct: prothrombin B stratus predicted <MAT>
F;109-187/Domain: kringle homology <KR1>
F;109-187/Domain: kringle homology <KR2>
F;351-619/Domain: trypsin homology <KR2>
F;351-619/Domain: trypsin homology <KR2>
F;351-619/Domain: trypsin homology <KR2>
F;361-619/Domain: trypsin homology <KR2>
F;361-66,91-104,109-187,130-170,158-182,215-293,236-276,264-288,333-479,388-404,533-547,5
F;361-66,91-104,109-187,130-170,158-182,215-293,236-276,264-288,333-479,388-404,533-547,5
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A:Residues: 1-618 CDEX.52308; NID:953813; PIDN:CAA36548.1; PID:953814
A:Cross references: GB:X52308; NID:953813; PIDN:CAA36548.1; PID:953814
A:Experimental source: strain C57BL/6
A:Experimental source: strain C57BL/6
A:Note: the data were obtained from females resulting from the cross of M. domesticus
R:Banfleld, D.K.; MacGillivray, R.T.A.
R:Banfleld, D.K.; MacGillivray, R.T.A.
Proc. Natl. Acad. Sci. U.S.A. 89, 2779-2783, 1992
A:Title: Partial characterization of vertebrate prothrombin cDNAs: amplification and
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A;Cross-references: GB:M81397
C;Superfamily: thrombin; Gla domain homology; kringle homology; trypsin homology
C;Keywords: blood coagulation; calcium binding; carboxyglutamic acid; glycoprotein; hydr
F;1-24/Domain: signal sequence #status predicted <SIG>
F;25-43/Domain: propertide #status predicted <PRO>
F;28-88/Domain: propertide #status predicted <PRO>
F;28-88/Domain: propertide #status predicted <PRO>
F;28-88/Domain: propertide #status experimental <PMAT>
F;44-617/Product: prothrombin #status experimental <PMAT>
F;109-187/Domain: kringle homology <KR1>
F;109-187/Domain: kringle homology <KR2>
F;360-609/Domain: kringle homology <KR2>
F;360-609/Domain: trypsin homology <TRY>
F;50,51,58,60,63,64,69,70,73,76/Modified site: gamma-carboxyglutamic acid (Glu) #status
F;61-66,91-104,109-187,130-170,158-182,215-292,236-276,264-287,332-478,387-403,532-546,5
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C:pate: 14-Dec-1990 #sequence_revision 14-Dec-1990 #text_change 22-Jun-1999
C:Accession: A35827; A42696; S12081
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A;Title: Characterization of the cDNA coding for mouse prothrombin and localization A; Reference number: A35827; MUID:91025551
A; Accession: A35827
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A; Residues: 383-617, 'E'
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A; Status: prelimina
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                                                                                                                                                                                                                                 565/Active
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18; Conser
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nilarity 40.0%;
Conservative
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Pred. No. 1.7e-05;
7; Mismatches 19
                                                         Score 82.5; Di
Pred. No. 1.7e
7; Mismatches
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F:87-120/Domain: EGF homology <EG1>
F:127-165/Domain: EGF homology <EG2>
F:171-207/Domain: EGF homology <EG3>
F:171-207/Domain: EGF homology <EG3>
F:213-248/Domain: EGF homology <EG4>
F:231-633/Domain: sex hormone-binding globulin
F:281-633/Domain: laminin G repeat homology <LG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Biochem, J. 305, 397-403, 1273
A;Title: Identification of candidate residues for
A;Reference number: $53433; MUID:95134217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              plasma protein S precursor, vitamin K dependent - rhesus macaque (fragment)
C; Species: Macaca mulatta (rhesus macaque)
C; Date: 19-Mar-1997 #sequence_revision 18-Jul-1997 #text_change 16-Jul-1999
B
                                                                                                                                                                                                                                                                                                                                                                       C;Superfamily: plasma protein S; EGF homology; Gla domain homolo F;1-51/Domain: Gla domain homology (fragment) GGLA> F;1-7/Domain: signal sequence (fragment) #status predicted <SIG>F;8-642/Product: plasma protein S #status predicted <MAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Residues: 1-642 <GRE>
A; Cross-references: EMBL: L31380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            R; Greengard, J.S.; Fernandez, J.A.; Radtke, K.P.; Biochem. J. 305, 397-403, 1995
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Experimental source: tissue
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Best Local
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8 ANSMLEETKQGNLERECIEELCNKEEAREVFENDPETDYFYPKY
                                               1 ANSFLXXLRHGSLXRXCIXXICDEXXAKXIFONVDDTLAFWSKH 44
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16; Conser
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                                                                                                                   41.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          type liver
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                                                                                           Score 82; DB
Pred. NO. 2.1e
10; Mismatches
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                                                                                                                      DB 2;
2.1e-05;
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A;Molecule type: DNA
A;Residues: 1-676 <SCH)
A;Residues: 1-676 <SCH)
A;Cross-references: GB:M57853; NID:g190547; PIDN:AAA60357.1; PID:g190549; GB:J02917
A;Cross-references: GB:M57853; NID:g190547; PIDN:AAA60357.1; PID:g190549; GB:J02917
A;Note: the authors translated the codon TTT for residue 26 as Leu
R;Ploos van Amstel, H.K.; Reitsma, P.H.; van der Logt, C.P.E.; Bertina, R.M.
Biochemistry 29, 7853-7861, 1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C;Species: Homo sapiens (man)
C;Date: 21-Sep-1990 #sequence_revision 26-Jan-1996 #text_change 16-Jul-1999
C;Accession: A35610; A35611; A26157; A25891; A35612; A60903; S02424; S09519
R;Schmidel, D.K.; Tatro, A.V.; Phelps, L.G.; Tomczak, J.A.; Long, G.L.
Biochemistry 29, 7845-7852, 1990
A;Title: Organization of the human protein S genes.
A;Reference number: A35610; MUID:91084444
A; Reference number: A; Accession: A26157
                                 R;HOSKins, J.; Norman, D.K.; Beckmann, R.J.; Long, G.L. Proc. Natl. Acad. Scl. U.S.A. 84, 349-353, 1987 A;Title: Cloning and characterization of human liver cDNA encoding A;Reference number: A26157; MUID:87092407
                                                                                                                                                                                          A; Molecule type: DNA
A; Residues: 1-25 <PL3>
A; Cross-references: GB:J02918
                                                                                                                                                                                                                                                                                                                                                       A; Title: Intron-exon organization of the active A; Reference number: A35611; MUID:91084445
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A; Description: a cofactor for activated protein C (EC 3.4.21.69); thrombin cleavage dest C; Superfamily: plasma protein S; EGF homology; Gla domain homology; laminin G repeat hom C; Keywords: beta-hydroxyasparagine; beta-hydroxyaspartic acid; blood coagulation; carbox F; 1-24/Domain: signal sequence #status predicted <SIG> F; 25-41/Domain: propeptide #status predicted <PRO> F; 25-41/Domain: propeptide #status predicted <PRO> F; 26-85/Domain: Gla domain homology <GLA> F; 42-676/Product: plasma protein S #status predicted <WAT> F; 11-154/Domain: EGF homology <EG1> F; 121-154/Domain: EGF homology 
                                                                            Qy
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A;Map position: 3p11.1-3q11.2
A;Introns: 26/1; 78/3; 87/1; 116/1; 157/1; 201/1; 243/1; 283/3; 322/2; 385/3; 441/3; C;Complex: in plasma forms a complex with C4b binding protein
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A; Residues: 351-676 < PLO>
A; Residues: 351-676 < PLO>
R; Ploos van Amstel, H.K.; van der Zanden, A.L.; Reitsma, P.H.; Bertina, R.M.
FEBS Lett. 222, 186-190, 1987
FEBS Lett. 222, 186-190, 1987
A; Title: Human protein S CDNA encodes Phe-16 and Tyr 222 in consensus sequen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: mRNA
A; Residues: 27-220, '.', '.222-262, 'H', '.264-344, 'Y', '.346-676 <LUN>
A; Residues: 27-220, 'L', '.222-262, 'H', '.264-344, 'Y', '.346-676 <LUN>
A; Cross-references: GB:M14338; NID:g190448; PIDN:AAA60181.1; PID:g190449
A; Note: part of this sequence, including the amino end of the mature pro:R; Edenbrandt, C.M.; Lundwall, A.; Wydro, R.; Stenflo, J.
Biochemistry 29, 7861-7868, 1990
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A;Accession: A25891
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A; Residues: 1-10, 'p',12-25,'L',27-676 <HOS>
A; Residues: 1-10, 'p',12-25,'L',27-676 <HOS>
A; Cross-references: GB:M15036; NID:g190288; PIDN:AAA36479.1;
R; Lundwall, A.; Dackowski, W.; Cohen, E.; Shaffer, M.; Mahr,
R; Lundwall, A.; Dackowski, W.; Cohen, E.; Shaffer, M.; Mahr,
Proc. Natl. Acad. Sci. U.S.A. 83, 6716-6720, 1986
    В
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R;Dloos van Amstel, J.K.; van der Zanden, A.L.; Bakker, Thromb. Haemost. 58, 982-987, 1987
A;Title: Two genes homologous with human protein S cDNA A;Reference number: A60903; MUID:88178564
A;Accession: A60903
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A;Accession: A35612
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A; Residues: 1-676 < PL2>
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A;Accession: S02424
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A; Residues: 284-676 <EDE>
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    42
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                                                               1 ANSFLXXLRHGSLXRXCIXXICDFXXAKXIFQNVDDTLAFWSKH 44
ANSLLEETKQGNLERECIEELCNKEEAREVFENDPETDYFYPKY
                                                                                                                                                                1 Similarity
16; Conser
                                                                                                                                                                Conservative
                                                                                                                                                                                              41.0%;
                                                                                                                                                                10;
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Pred. No.
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. 2.2e-05;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        are located on
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A.; Dahlback,
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A;Cross-references: GB:M33826; NID:g163949; PIDN:AAA30844.1; PID:g163950 C;Superfamily: coagulation factor X; EGF homology; Gla domain homology; t C;Keywords: beta-hydroxyaspartic acid; blood coagulation; calcium binding F;1-21/Domain: signal sequence #status predicted <SIG> F;22-40/Domain: propeptide #status predicted <PRO> F;24-84/Domain: propeptide #status predicted <PRO> F;24-84/Domain: Gla domain homology <GLA> F;41-452/Product: coagulation factor IX #status predicted <MAT> F;90-121/Domain: EGF homology <EG1> F;127-163/Domain: EGF homology <EG1> F;127-163/Domain: EGF homology <EG2
                                                                                                                                                                                                                                                                       F;127-163/Domain: EGF homology <EG2>
F;218-445/Domain: trypsin homology <FRY>
F;4218-445/Domain: trypsin homology <FRY>
F;46,47,54,56,59,60,65,66,69,72,75,79/Modified site: gamma-carboxyglutamic acid (Glu)
F;57-62,90-101,95-110,112-121,127-138,134-148,150-163,171-326,243-259,373-387,398-426
F;258,306,402/Active site: His, Asp, Ser #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  R;Axelrod, J.H.; Read, M.S.; Brinkhous, K.M.; Verma, I. Proc. Natl. Acad. Sci. U.S.A. 87, 5173-5177, 1990 A;Title: Phenotypic correction of factor IX deficiency A;Reference number: I46201; MUID:90311364
A;Accession: I46201
   Дb
                                                   ν
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A; Residues: 1-452 < AXE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Molecule type: mRNA
A; Residues: 1-452 <EVA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   R:Evans, J.P.; Watzke, H.H.; Ware, J.L.; Staff Blood 74, 207-212, 1989 A;Title: Molecular cloning of a cDNA encoding A;Reference number: A30351; MUID:89323338 A;Accession: A30351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    coagulation factor IXa (EC 3.4.21.22) p
C;Species: Canis lupus familiaris (dog
C;Date: 10-Sep-1999 #sequence_revision
C;Accession: A30351; I46201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Cross-references: GB:M21757; NID:g972719; PIDN:AAA75006.1; PID:g163948 R;Axelrod, J.H.; Read, M.S.; Brinkhous, K.M.; Verma, I.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Status: preliminary
                                                                                                                          Matches
                                                                                                                                                   Query Match
Best Local
   51
                                                         11 gSLXRXCIXXICDFXXAKXIFQNVDDTLAFWSKH 44
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GNLERECIEEKCSFEEAREVFENTEKTTEFWKQY
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                                                                                                                                                   Similarity
                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       H.H.; Ware, J.L.; Stafford, D.W.; High,
                                                                                                                                                   40.5%;
                                                                                                                   Score 81; DB
Pred. No. 2.2e
7; Mismatches
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   84
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                                                                                                                                                                             Length 452
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calcium binding;
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Title: Perfect score:

Scoring table: Sequence: Run

23, Appli 2, Appli 2, Appli 2, Appli 2, Appli 2, Appli 2, Appli 3, Appli 1, Appli 5, Appli 5, Appli 5, Appli 1, Appli

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Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
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score greater to
and is derived
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Match
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      Issued_Patents_AA:*
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/cgn2_6/ptodata/2/laa/5B_COMB.pep:*
/cgn2_6/ptodata/2/laa/6B_COMB.pep:*
/cgn2_6/ptodata/2/laa/6B_COMB.pep:*
/cgn2_6/ptodata/2/laa/FCTUS_COMB.pep:*
/cgn2_6/ptodata/2/laa/PCTUS_COMB.pep:*
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      8, 2001, 08:50:31; Search time 12.45 Seconds (without alignments) 79.530 Million cell updates/sec
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   US-08-955-636-1
US-08-955-411-1
US-08-955-411-1
US-08-955-411-1
US-08-955-411-1
US-08-955-636-2
US-08-756-506-2
US-08-756-506-4
5270178-14
5270178-14
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5270178-18
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5270178-18
53-636-35
US-08-955-636-35
US-08-955-636-25
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Sequence 1, Appli
Sequence 2, Appli
Sequence 1, Appli
Sequence 1, Appli
Sequence 2, Appli
Sequence 4, Appli
Sequence 4, Appli
Sequence 4, Appli
Patent No. 5270178
Sequence 24, Appli
Sequence 25, Appli
Sequence 27, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                            Description
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Patent No. 6017882
GENERAL INFORMATION:
APPLICANT: Nelsestuen, Gary
TITLE OF INVENTION: MODIFIED VITAMIN K-DEPENDENT
TITLE OF INVENTION: DALYEPTIDES
FILE REFERENCE: 09531/002001
CURRENT APPLICATION NUMBER: US/08/955,636A
CURRENT FILING DATE: 1997-10-23
NUMBER OF SEQ ID NOS: 35
NUMBER OF SEQ ID NOS: 35
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 44

TYPE: PRT
ORGANISM: Homo sapiens
FEATURE:
NAME/KEY: MOD_RES
LOCATION: (0)...(0)
OTHER INFORMATION: xaa-gamma c:
US-08-955-636-1
                                                                                                                                                            RESULT 2
US-08-965-832-2
; Sequence 2, Application US/08965832
; Patent No. 5847085
; GENERAL INFORMATION:
APPLICANT: CHARLES T. ESMON AND
; APPLICANT: CHARLES T. ESMON AND
                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
"atches 43; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 1
US-08-955-636-1
                 ADDRESSEE: Patrea L. Pabst
STREET: 2800 One Atlantic Center, 1
STREET: Peachtree Street
CITY: Atlanta
STATE: GA
COUNTRY: USA
ZIP: 30309-3450
    COMPUTER READABLE FORM
                                                                                                                     APPLICANT: CHARLES T. I
TITLE OF INVENTION: MOU
NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                      Conservative
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US-08-390-978-2
US-08-474-042-2
US-08-484-558-2
US-08-487-037-2
US-08-487-037-3
US-08-487-037-3
US-08-489-658-53
US-08-469-486-53
US-08-469-658-53
US-08-469-658-53
US-08-955-411-3
US-08-955-411-3
US-08-955-411-3
US-08-955-636-18
                                                                                                                                                                                                                                                                                                                                                                                                                                        carboxyglutamic
                                                                                                                                                                                                                                                                                                                                               Score 176; DB Pred. No. 7.5e 0; Mismatches
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Database

Minimum DB Maximum DB

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US-08-295-411-1
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                                                                                                                                                                                                                                                                                                                                                                       Sequence 1, Application US/08295411 Patent No. 5679639
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
Matches 43; Conserv
                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
APPLICANT: Griffin,
APPLICANT: Mesters,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: (404)-873-8795
INFORMATION FOR SEQ ID NO: 2:
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
                                                                                                                                                                                                                                                             TITLE OF INVENTION:
TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE CHARACTERISTICS:
LENGTH: 45 amino acids
TYPE: amino acid
STRANDEDNESS: single
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TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
APPLICATION NUMBER: 60/05
FILING DATE: 25-JUL-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: PatentIn Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                            NUMBER OF SEQUENCES:
                                                                                                                              STREET: 10666 N
CITY: La Jolla
STATE: CA
                                                                                              COUNTRY: U
ZIP: 92037
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCATION: 6, 7, 14, 16, 19, 20, 25, 26, 29
OTHER INFORMATION: /note= "where Xaa means gamma
OTHER INFORMATION: carboxylglutamic acid"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 08/7 FILING DATE: 8-NOV-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US/08/965,832 FILING DATE: 7-NOV-1997 CLASSIFICATION: 530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME: Pabst, Patrea L. REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY:
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                                                                                                                                                                                       ADDRESSEE:
                                                                                                                                                                                                        ADDRESSEE:
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linear
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                                                                                                                                                               Research Institute
366 No. 5679639th Torrey Pines Road, TPC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (404)-873-8794
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                                                                                                                                                                                                                                                           Serine Protease-Derived Polypeptides and Anti-Peptide Antibodies, Systems and Therapeutic Methods for Inhibiting Coagulation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         88.0%;
97.7%;
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31,284
OMRF 165/167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
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Pred. No. 7.7e-23;
0; Mismatches 1
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   Version #1.
       . 25
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RESULT 4
US-08-955-471-1
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                                                                                                                                                                                                                                                                                                                           Sequence 1, Application US/08955471 Patent No. 5968751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
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Best Local Similarity
                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INFORMATION FOR SEQ ID NO: 1: SEQUENCE CHARACTERISTICS:
                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                   ADDINE INC.
STREET: LUCK
CITY: La JO
~~~TRE: CA
                                                                                                                                                                                                                     TITLE OF INVENTION:
TITLE OF INVENTION:
NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                APPLICANT: Griffin, APPLICANT: Mesters,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELECOMMUNICATION INFORMATION: TELEPHONE: 619-554-2937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION DATA: APPLICATION NUMBER: US
                                                                                                                                                                                                       CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                   TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HYPOTHETICAL:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTORNEY/AGENT INFORMATION: NAME: Fitting, Thomas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY: Region
LOCATION: 158..169
OTHER INFORMATION: /
OTHER INFORMATION: F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY:
LOCATION:
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LOCATION:
                                                                                            COUNTRY: UZIP: 92037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: Region LOCATION: 170..419 OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OTHER INFORMATION:
            SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US 0 FILING DATE: 18-NOV-1991
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                                                                                                                                                                                     ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                        1 ANSFLEELRHSSLERECIEEICDFEEAKEIFQNVDDTLAFWSKH 44
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ARE: PatentIn Release #1.0, APPLICATION DATA:
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666 No. 5968751th Torrey Pines Road, TPC
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77.3%;
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                Version #1.25
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Therapeutic Methods
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APPLICATION NUMBER:

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Best Local Similarity
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INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                           APPLICANT: Griffin, APPLICANT: Mesters, TITLE OF INVENTION: TITLE OF INVENTION:
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US92/10242
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LOCATION: 158..169
OTHER INFORMATION: OTHER INFORMATION: I
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APPLICATION NUMBER:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: Region 170..419
                                                                                                             COUNTRY: USA
ZIP: 92037
                                                                                                                                                                 ADDRESSEE: Office of Patent Counsel, The Scripps ADDRESSEE: Research Institute STREET: 10666 North Torrey Pines Road, TPC 8
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Mesters, Rolf
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Pred. No. 9.
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Therapeutic Methods
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Best Local :
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INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                           APPLICANT:
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/756,506
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                                                                                                                                                                                                    TITLE OF INVENTION: PROTEIN TITLE OF INVENTION: ANIMALS NUMBER OF SEQUENCES: 25
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NAME/KEY: Region
LOCATION: 170..419
OTHER INFORMATION:
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MOLECULE TYPE:
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TELECOMMUNICATION INFORMATION:
TELEPHONE: 619-554-2937
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FILING DATE: 18-NOV-1991
ATTORNEY/AGENT INFORMATION:
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LOCATION: 158..169
OTHER INFORMATION: ,
OTHER INFORMATION: 1
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ZIP: 98102
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                                                                                                                                             Seattle
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Prunkard, Donna E.
VENTION: PROTEIN C PRODUCTION IN TRANSGENIC
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77.3%;
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Peptide"
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; TOPOLOGY: linear; MOLECULE TYPE: protein US-08-756-506-4
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Best Local
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                                                                                                                                                                               TELEFAX: 206-442-6678
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
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INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY/AGENT INFORMATION:
NAME: Sawislak, Deborah A
REGISTRATION NUMBER: 37,438
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APPLICANT: Sprecher, Cindy A.
APPLICANT: Prunkard, Donna E.
TITLE OF INVENTION: PROTEIN C PRODUCTION IN TRANSGENIC
TITLE OF INVENTION: ANIMALS
                                                                                                                                                                                                                                                                                                               TELECOMMUNICATION INFORMATION: TELEPHONE: 206-442-6672
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CORRESPONDENCE ADDRESS:
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ATTORNEY/AGENT INFORMATION:
NAME: Sawislak, Deborah A
REGISTRATION NUMBER: 37,438
REFERENCE/DOCKET NUMBER: 95-28
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                                                                                                   TYPE: amino acid
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TELEPHONE: 206-442-6678
TELEPHONE: T
                                                                                                                                                                                                                                                                                                                                                                               REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ZIP:
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les 34; Conserv
                                                                                                                                                                                                                                                                                                       TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US/08/756,506 FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          E: ZymoGenetics, Inc.
1201 Eastlake Avenue East
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 460 amino acids
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Pred. No. 1e-21;
0; Mismatches
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Query Match

88.0%;

Score 176;

DB 2;

Length 460;

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RESULT 9
5270178-14
; PATENT NO. 5270178
; APPLICANT: GERLITZ, BRUCE E.; GRINNELL, BRIAN W.
; TITLE OF INVENTION: VECTORS AND COMPOUNDS FOR EXPRESSION (
; ZYMOGEN FORMS OF HUMAN PROTEIN C
; NUMBER OF SEQUENCES: 21
; NUMBER OF SEQUENCES: 21
                                                                                                                                PATENT NO. 5270178

APPLICANT: GERLITZ, BRUCE E.; GRINNELL, BRIAN W.
TITLE OF INVENTION: VECTORS AND COMPOUNDS FOR E
ZYMOGEN FORMS OF HUMAN PROTEIN C
NUMBER OF SEQUENCES: 21
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/484,133
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5270178-15
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; APPLICANT: GERLITZ, BRUCE E.;GRINNELL, BRIAN W.
; TITLE OF INVENTION: VECTORS AND COMPOUNDS FOR EXPRESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 8
5270178-13
                                                                                                ; SEQ ID NO:15:
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, NUMBER OF SEQUENCES: 21
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; FILING DATE: 23-FEB-1990; SEQ ID NO:13: LENGTH: 460
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Query Match
Best Local Similarity
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Best Local
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Best Local
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APPLICATION NUMBER: US/
FILING DATE: 23-FEB-1990
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                                                                                    LENGTH: 460
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34; Conserv
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Similarity 77.3%;
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0; Mismatches
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 Score 176; DB 6;
Pred. No. 1e-21;
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                 Length 460;
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RESULT 1:
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                                                                    5270178-17
                                                                                                        PATENT NO. 5270178

APPLICANT: GERLITZ, BRUCE E.; GRINNELL, BRIAN W.
TITLE OF INVENTION: VECTORS AND COMPOUNDS FOR EXPRESSION OF
ZYMOGEN FORMS OF HUMAN PROTEIN C
NUMBER OF SEQUENCES: 21
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/484,133
FILING DATE: 23-FEB-1990
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5270178-17
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; Patent No. 5225537
; APPLICANT: FOSTER, DONALD
; TITLE OF INVENTION: METHODS FOR PRODUCING HYBRID
; PHOSPHOLIPID-BINDING PROTEINS
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APPLICANT: GERLITZ, BRUCE E.; GRINNELL, BRI
TITLE OF INVENTION: VECTORS AND COMPOUNDS
ZYMOGEN FORMS OF HUMAN PROTEIN C
NUMBER OF SEQUENCES: 21
CURRENT APPLICATION DATA:
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5270178-16
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                                                                                SEQ ID NO:17:
LENGTH: 461
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Best Local Similarity 77.3
Matches 34; Conservative
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Best Local Similarity 77.3%;
            Best Local Similarity
                        Query Match
Matches
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CURRENT APPLICATION DATA:
APPLICATION NUMBER: US,
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77.3%;
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Pred. No. 1e-21;
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            Score 176; DB 6
Pred. No. 1e-21;
Mismatches
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NDS FOR EXPRESSION
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                         DB 6; Length 461;
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Search completed: November Job time: 182 sec
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5460953-3
;Patent No. 5460953
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TITLE OF INVENTION: VECTORS AND COMPOUNDS FOR EXPRESSION OF
ZYMOGEN FORMS OF HUMAN PROTEIN C
NUMBER OF SEQUENCES: 21
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/484,133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 14
5270178-18
                                                                                                                                                                                                                     5460953-3
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TITLE OF INVENTION: VECTORS AND COMPOUNDS
;GLYCOSYLATION MUTANTS OF HUMAN PROTEIN C
NUMBER OF SEQUENCES: 3
;CURRENT APPLICATION DATA:
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                                                                                                                                                                                                                                    SEQ ID NO:3:
LENGTH: 461
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                                                                                                                                     Query Match
Best Local Similarity
Matches 34; Conserv
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Best Local Similarity
                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US/08/93
FILING DATE: 09-SEP-1993
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 628,063
FILING DATE: 21-DEC-1990
APPLICATION NUMBER: 484,081
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FILING DATE: 23-FEB-1990
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                                                                         1 ANSFLXXLRHGSLXRXCIXXICDFXXAKXIFQNVDDTLAFWSKH 44
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                                                                                                                                        Conservative
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77.3%;
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Pred. No. 1e-21;
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                                                                                                                                                     Score 176; DB 6
Pred. No. 1e-21;
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                                                                                                                                                                                                                                                                                                                                                                                                                                            BRIAN W.
                                                                                                                                                                    DB 6; Length 461;
                                                                                                                                                                                                                                                                                                                                                                                                                            FOR EXPRESSION
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Maximum Match 100%
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Maximum DB
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and is derived
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200
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SIDSB/gcgdata/geneseq/geneseqp/AA1981.DAT:

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                                                                                                                                                                                                                                                 Length
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  AAY18303
AAW75710
AAW7576003
AAW756803
AAW72760
AAW72763
AAB36894
AAB36896
AAB36896
AAB36896
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Human protein C GL
Human protein C ga
Partial human prot
Truncated human pr
Protein C (PC). H
Primary structure
Human protein C de
Seguence of human
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45	44	<b>4</b> 3	42						36																					15	14	13	12
123	123	133	159	159	160	160	160	166	166	168	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176	176
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AAB36403	AAY18304	AAY18308	AAY18307	AAW11905	AAY18298	AAY18299	AAY18309	AAY18301	AAY18300	AAY18297	AAB36895	AAY49561	AAW02600	AAR62653	AAR34295	AAR13997	AAR13584	AAR13582	AAR13585	AAR13622	AAR13540	AAR13539	AAR13081	AAR13074	AAP90401	AAP90070	AAP81205	AAP70855	AAP60001	AAW25086	AAR13623	AAR13538	AAR13537
C	Bovine protein C G	ied GLA doma	Modified GLA domai	319 0	GLA	GLA	GLA	fied GLA	fied GLA	ថ្មី	protein C	lecithin	protein	Human protein C.	9	protein C z	protein C	protein C z	protein	protein C.	Protein C	Protein C	ğ	C precur	Zymogen form of hu	protein	protein C	o.	ce of pol	protein C.	Protein C	. Human Protein C zy	

## ALIGNMENTS

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RESULT
                                                                                                                                                                                                                         AAY18303
                                                                                                                  Key
Misc-difference
     WPI; 1999-288309/24
                                                                                                                                                           GLA domain; vitamin K-dependent protein; clotting disorder;
                                                                                                                                                                         Human protein C GLA domain.
                                                                                                                                                                                       17-AUG-1999
                                                                                                                                                                                                     AAY18303;
                                                                                                                                                                                                                 AAY18303 standard; peptide;
                                                                                       W09920767-A1
                                                                                                                                       Homo sapiens
                                                                                                                                                   therapy.
                   Nelsestuen GL;
                                              23-OCT-1997;
                                                           20-OCT-1998;
                                                                         29-APR-1999.
                                (MINU ) UNIV MINNESOTA.
                                                                                                                                                                                                                               ٦
                                                                                                                                                                                       (first entry)
                                              97US-0955636
                                                            98WO-US22152
                                                                                                                 Location/Qualifiers
                                                                                                     /note= "Xaa= gamma-carboxyglutamic acid, or glutamic
acid"
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RESULT
AAB36402
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Matches 43
The present invention describes a VILAMILIA COMPTISING A MODIFICATION OF A TOTAL COMPTISING A MODIFICATION OF A TOTAL COMPTISING A MODIFICATION OF A TOTAL COMPTISION OF A TOTAL
                                                                                                                                                                                                                gamma-carboxy
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Vitamin
acid dom
                                                                                                                                                               Example
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAB36402
                                                                                                                                                                                                                                                     Novel
                                                                                                                                                                                                                                                                                                                                                                                             29-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 09-NOV-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO200066753-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gamma-carboxyglutamic acid domain; factor IX; protein S; pactor X; prothrombin; enhanced membrane binding affinity; clot formation; thrombolytic; haemostatic; bleeding disorcal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human protein C gamma-carboxyglutamic acid domain SEQ ID
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                                                                                                                                                                                                                                                                                                                       Nelsestuen GL;
                                                                                                                                                                                                                                                                                                                                                      (MINU ) UNIV MINNESOTA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          thrombosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          which enhances
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ich enhances membrane binding of the modified polypeptide as compared the native polypeptide. The polypeptide is used to treat a clotting sorder by decreasing or increasing clot formation. Modification of the A domain results in a protein which has enhanced membrane binding finity as compared to the native protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         \vdash
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                                                                                                                                                                                                                                                                                      2001-007226/01.
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                                                                                                                                                                                                             vitamin K-dependent polypeptide useful for treating clott. ders such as thrombosis and hemophilia, comprises modified carboxy glutamic acid domain that enhances membrane binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             43; Conser
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   44
                                                                                                                                                             Page 42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      clotting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                              2000WO-US11416
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97.7%;
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                                                                                                      describes a vitamin K-dependent polypeptide (1) gamma-carboxy glutamic acid (GLA) domain having
                                                                                      gamma-carboxy glutamic acid (GLA) domain havin id substitution, that enhances membrane binding
                                                                                                                                                           English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            English
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          factor VII;
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A; haemop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20;
                                                                                                                                                                                                                                                for treating clotting
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 44;
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                                    be used
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WPI;
                                                                                                         (OKLA-) OKLAHOMA MEDICAL
                                                                                                                                                                 25-JUL-1997;
08-NOV-1996;
                                                                                                                                                                                                                                                      07-NOV-1997;
                                                                                                                                                                                                                                                                                                           14-MAY-1998
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Partial human protein C amino
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43; Conservative
                                                    Smirnov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          44 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note=
                                                                                                                                                                 97US-0053768
96US-0745254
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29
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26
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25
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20
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16
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein;
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                                                                                                               RES
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 176;
Pred. No. 2
                                                                                                               FOUND
                                                                                                                                                                                                                                                                                                                                                                                                                     carboxylglutamic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             carboxylglutamic
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2e-22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                             acid"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     anticoagulant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a modified
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cc protein C protein, which contains gamma carboxylglutanic acid modified creations. This sequence was replaced with the corresponding regions of commodified human prothrombin (AAW75709), to create a protein C prothrombin CB dia domain chimera. To produce this chimera, the wild type protein C connaws ligated into pRc/RSV to form RSV-PC, and then was digested with C crestriction enzymes to remove the first three exons and the first codon of exon four. The prothrombin cDNA was amplified, digested, and then CC ligated into RSV-PC at the identical site where the protein C cDNA exons CC 1-3 had been removed. This construct was then transfected into human CC 293 cells, from which the chimeric protein can be purified. This construct was then transfected into This CC chimeric protein can be used as a anticoagulant, to treat disorders where CC protein S is low, some forms of lupus, following stroke or myocardial CC infarction, after venous thrombosis and in disseminated intravascular coagulation, adult respiratory distress syndrome, in thromboembolic disease or factor V Leiden.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 43
This represents a human protein C polypeptide having a light chain and a truncated heavy chain. The protein can be produced by standard recombinant methodologies. The truncated protein C is used to treat a
                                                                                                                                                                                                                                                                                                                                                                                                                               Protein C; truncated; thrombotic disorder; vascular disorder; stroke; hypercoagulable state; myocardial infarction; unstable angina; sepsis; adult respiratory distress syndrome; sickle cell anemia; human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Truncated human protein C polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The present sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     carboxyglutamic acid region replaced with Vitamin K dependent clotting factor e.g. prothrombin
                                                                                                Novel polypeptide useful for treating thrombotic and vascular diseases and hypercoagulation, e.g. stroke -
                                                                                                                                                WPI; 2000-086975/07.
N-PSDB; AAZ46750.
                                                                                                                                                                                                                                                                  01-JUN-1998;
                                                                                                                                                                                                                                                                                                   01-JUN-1999;
                                                                                                                                                                                                                                                                                                                                    09-DEC-1999
                                                                                                                                                                                                                                                                                                                                                                     WO9963070-A1
                                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAY56803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Example 1; Page 15; 42pp;
                                                                                                                                                                                                                                 (ELIL ) LILLY & CO ELI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
les 43; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ۵
                                                                 <u>ب</u>
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                                                                 Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     standard;
                                                                                                                                                                                               Riggin
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                                                                   22-23;
                                                                                                                                                                                                                                                                  9805-0087585
                                                                                                                                                                                                                                                                                                   99WO-US11969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  88.0%;
                                                               23pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     represents the first three exons of the human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     415
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 176; DB 19;
Pred. No. 2.1e-22;
0; Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
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Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   wide range of thrombotic or vascular disorders or hypercoagulable states, e.g. stroke; myocardial infarction; unstable angina; sepsis; adult respiratory distress syndrome; sickle cell anemia etc. The truncated protein C retains the activity of full-length protein C but does not undergo C-terminal cleavage, of the heavy chain, during activation.
               Serine protease derived-polypeptide(s) and anti-peptide antibodies - for inhibiting coagulation and assaying for presence of serine protease in fluid samples
                                                                           Griffin JH,
                                                                                                                                                                                                                                                                                                                                                  Region
                                                                                                                                                                                                                                                                                                                                                                                Кеу
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Protein C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAR35760 standard; protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                        WPI; 1993-182244/22.
                                                                                                                   18-NOV-1991;
                                                                                                                                      18-NOV-1992;
                                                                                                                                                                             WO9309804-A
                                                                                                                                                                                                                              Peptide
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                                                                                                                                                                                                                                                                                                                               Region
                                                                                                                                                                                                                                                                                                                                                                       Region
                                                                                                                                                                                                                                                                                                                                                                                                   Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                       exosite;
                                                                                                                                                                                                                                                                                                                                                                                                                                  PC; protein C; ] Factor VII; CT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   24-SEP-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAR35760;
                                                                                              (SCRI ) SCRIPPS RES INST
                                                                                                                                                          27-MAY-1993
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                                                                                                                                                                                                                                                                                                                                                                                                                                                               (PC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   415 AA;
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                                                                           Mesters
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                                                                                                                                                                                                                                                                                                                                                                                                                                           IX;
                                                                                                                   91US-0793989
                                                                                                                                       92WO-US10242
                                                                                                                                                                                                                                                                                                                                                                                                                       chymotrypsinogen;
tic activity.
                                                                                                                                                                                                                                                                                        /note=
                                                                                                                                                                                                                                                                                                                              /note= "protein C activation" 170..419
                                                                                                                                                                                                                                                                    311..325
                                                                                                                                                                                                                                                                                                            390..404
                                                                                                                                                                                                                                                                                                                                                     158..169
                                                                                                                                                                                                                                       /note=
                                                                                                                                                                                                                                                   142..155
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                                                                                                                                                                                                                                                                               /note=
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                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                 Factor IX; X; Factor X; PT; prothrombin; VII;
ymotrypsinogen; SP; serine protease; binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           88.0%;
77.3%;
                                                                                                                                                                                                                                                                                          . 331
                                                                                                                                                                                                                                                                                                                                                             "protein C light chain"
                                                                                                                                                                                                                                       "pref. PC
                                                                                                                                                                                                                                                                                                  "exosite 1;
                                                                                                                                                                                                                    "claim 5,
                                                                                                                                                                                                                                                          "pref.
                                                                                                                                                                                                                                                                                                                      "protein C heavy chain"
                                                                                                                                                                                                                                                                              "exosite 2"
                                                                                                                                                                                               "claim 5, page 137 describes an antibody that reacts with PC; fragments 311-325 and 142-155 but not with fragment 266-287"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 176;
Pred. No. 2.
                                                                                                                                                                                                                                                           PC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                       polypeptide;
                                                                                                                                                                                                                                                          polypeptide;
                                                                                                                                                                                                                                                                                                  claim 1, page 136"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 21;
.2e-21;
                                                                                                                                                                                                                                        claim
                                                                                                                                                                                                                                                            claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 415;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                    2,
                                                                                                                                                                                                                                                          'n
                                                                                                                                                                                                                                      page 136"
                                                                                                                                                                                                                                                           page
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Disclosure; Page 124-126; 149pp; English

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Best Local
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Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                            purification; processing; intravascular coagulation; thrombotic stroke; deep vein thrombosis; pulmonary embolism; peripheral arterial thrombosis; emboli; heart; peripheral artery; acute myocardial infarction; disseminated intravascular coagulation; acute precapillary occlusion; postcapillary occlusion; transplantation; retina thrombosis.
                   Misc-difference
                                          Misc-difference
                                                              Misc-difference
                                                                                    Misc-difference
                                                                                                                                Misc-difference
                                                                                                                                                   Misc-difference
                                                                                                                                                                          Misc-difference
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                                                                                                                                                                                                                                          Misc-difference
                                                                                                                                                                                                                                                                                      Disulfide-bond
                                                                                                                                                                                                                                                                                               Disulfide-bond
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                                                                                                                                                                                                                                                                                                                                Disulfide-bond
                                                                                                                                                                                                                                                                                                                                         Disulfide-bond
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Primary structure of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               08-JAN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAW72753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAW72753 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The PC polypeptides indicated in the Features Table inhibit coagulation (they prevent binding of serine protease to natural substrates), esp. when admin. To an intravascular blood concn. of 0.1-100 (pref. 0.5-10) microM.

NB: Sequences corresp. to SEQ ID NO 6, 7, 8 and 9 are described in the specification but have not yet been added to the SEQUENCI
                                                                                                                                                                                                                                                                Misc-difference
                                                                                                                                                                                                                                                                           Disulfide-bond
                                                                                                                                                                                                                                                                                                                                                                            HOMO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LISTING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 ANSFLXXLRHGSLXRXCIXXICDFXXAKXIFQNVDDTLAFWSKH 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6
                                                                                                                                                                                                                                                                                                                                                                          sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ansfleelrhsslerecieeicdfeeakeifqnvddtlafwskh 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                   activated protein C; primary structure; autodegradation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ą
                                                                                                                                                                                                /note=
156
                   /note=
164
                                                                                                                                                    158
                                                                                                                                                                        /note= "unspecified"
157
                                                              /note-
162
                                                                                   /note=
161
                                                                                                                                                                                                                   /note= "unspecified"
                                                                                                          160
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120..133
141..277
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                                                                                                                              /note= "unspecified"
159
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                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                    /note= "unspecified"
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                                                                                                                   /note= "unspecified"
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          note=
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                        activated human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    88.0%;
77.3%;
                              "unspecified"
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                                                                                              "unspecified"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 176; DB 14;
Pred. No. 2.2e-21;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14;
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Best Local :
                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                       An improved method has been developed of processing an aqueous solution of activated protein C (aPC). The method comprises conducting the processing at an ionic strength greater than 150 mM and a pH of 5.5-6.3. The present sequence represents the primary structure of activated human protein C, used to assist in illustrating the autodegradation pathways described in the present invention. The aPC is used for treating a variety of acquired disease states involving intravascular coagulation e.g. thrombotic stroke, deep vein thrombosis, pulmonary embolism, peripheral arterial thrombosis, emboli originating from the heart or peripheral arteries, acute myocardial infarction, disseminated
Protein C; human; vaso deep vein thrombosis;
                                       Human protein C derivative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and
                                                                   26-FEB-2001
                                                                                                                       AAB36894 standard; Protein; 419 AA
                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                      preferably
                                                                                                                                                                                                                                                                                                                                                                               intravascular coagulation and acute pre- or postcapillary occlusions including transplantations or retina thrombosis. The process minimis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Disclosure; Fig 1; 7pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Improved processing and purification of activated protein C -comprises processing aqueous solution at specified ionic strength and pH to reduce the amount of autodegradation products
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                                                                                                                                                                                                                                                                                                                                                     percentage of autodegradation products forming at most 10%, ferably below 5% of des(1-9) aPC and des(1-10) aPC by weight,
                                                                                                                                                                                       ansfleelrhsslerecieeicdfeeakeifqnvddtlafwskh
                                                                                                                                                                                                                                                          Similarity
human; vascular oc
thrombosis; sickle
                                                                                                                                                                                                                                                                                                                419
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                                                                                                                                                                                                                                              Conservative
                                                                (first entry)
                                                                                                                                                                                                                                                                                                                AA,
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196..212
331..345
356..384
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occlusive; burn; tra
le cell; thalassemia;
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                                                                                                                                                                                                                                           Score 176; DB 19;
Pred. No. 2.2e-21;
0; Mismatches 10;
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            transplantation;
                                                                                                                                                                                                                                              10;
                                                                                                                                                                                                                                                                      Length 419;
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Best Local S
Matches 34
                                                                                                                                                                                                                             Protein C; human; vascular occlusive; burn; transplantation; deep vein thrombosis; sickle cell; thalassemia;
                                                                                                                                                                                                                                                                                                                                                                             26-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                           AAB36896;
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                           09-NOV-2000
                                                                                   WO200066754-A1
                                                                                                                                          Homo sapiens.
                                                                                                                                                                                                    thrombotic disorders;
                                                                                                                                                                                                                                                                                                                   Human protein C
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.2e-21;
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RESULT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 77.3
            Gerlitz BE,
                                                                                                                                                                                                                 Protein C; human; vascular occlusive; burn; transplantation; deep vein thrombosis; sickle cell; thalassemia; thrombotic disorders; myocardial infarction; angina; stroke.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Protein \cdot C derivatives, useful for treating vascular occlusive disorder, hypercoagulable state, thrombotic disorder and disease states predisposing thrombosis, comprises specific amino acid substitutions \cdot
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                                       (ELIL ) LILLY & CO ELI
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                                                                                                                                                                                                                                                                                 Human protein C
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          Jones BE;
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77.3%;
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.2e-21;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
   Claim 6;
                          Protein C derivatives, useful for treating vascular occlusive disorder, hypercoagulable state, thrombotic disorder and disease states predisposing thrombosis, comprises specific amino acid substitutions -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        hypercoagulable states such as sepsis, disseminated intravascular coagulation, purpura fulminans, major trauma, major surgery, burns, adult respiratory distress syndrome, transplantation, deep vein thrombosis, heparin-induced thrombocytopenia, sickle cell disease, thalassemia, viral hemorrhagic fever, thrombotic thrombocytopenic purpura, and hemolytic urenic syndrome, and also useful for treating thrombotic disorders and acute coronary syndromes such as myocardial infarction, unstable angina, and stroke. Protein C derivatives with amino acid substitutions result in increased resistance to
                                                                                                 WPI; 2001-007227/01.
N-PSDB; AAC83315.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           inactivation by serpins when compared to wild-type activated human protein C. They also have longer half-lives in human blood and hence require either less frequent administration and/or smaller dosage than wild type human protein C for treating disorders.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The present invention relates to a number protein is useful for treating vascular occlusive disorders,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Protein C derivatives, useful for treating vascular occlusive disorder, hypercoagulable state, thrombotic disorder and disease states predisposing thrombosis, comprises specific amino acid substitutions -
                                                                                                                                                                                                                                             13-APR-2000; 2000WO-US08722
                                                                                                                                                                                                                                                                                                                                                                                       Protein C; human; vascular occlusive; burn; transplantation; deep vein thrombosis; sickle cell; thalassemia;
                                                                                                                                                                                                                                                                                                                                                                                                                                         Human protein C derivative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAB36898;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAB36898 standard; Protein; 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 5; Page 48-49; 57pp; English.
                                                                                                                                                                               (ELIL ) LILLY & CO ELI.
                                                                                                                                                                                                                                                                               09-NOV-2000
                                                                                                                                                                                                                                                                                                             WO200066754-A1
                                                                                                                                                                                                                                                                                                                                           Homo sapiens.
                                                                                                                                                                                                               30-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                           thrombotic disorders;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  y Match 88.0%;
Local Similarity 77.3%;
nes 34; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2001-007227/01.
DB; AAC83314.
                                                                                                                                                 BE,
 Page 49-51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Α,
                                                                                                                                                                                                               99US-0131801
57pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         relates to a human protein C derivative. The
                                                                                                                                                                                                                                                                                                                                                                         myocardial infarction; angina; stroke
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 176; DB 22;
Pred. No. 2.2e-21;
0; Mismatches 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 419;
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42

1 ANSFLXXLRHGSLXRXCIXXICDFXXAKXIFQNVDDTLAFWSKH 44

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RESULT :
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Best Local S
Matches 34
    Matches
                 Query Match
Best Local
                                                                        Sequence
                                                                                                  The human protein E.coli K12/Om 225
                                                                                                                                           Disclosure; ; 16pp;
                                                                                                                                                                     Human protein C gene – prepd.
                                                                                                                                                                                                  WPI; 1988-350711/49.
N-PSDB; AAN81408.
                                                                                                                                                                                                                                                                                                 21-APR-1987;
                                                                                                                                                                                                                                                                                                                                                       JP63263083-A
                                                                                                                                                                                                                                                                                                                                                                                                            Human protein C;
                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence of human protein C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAP81104 standard; protein; 460 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 inactivation by serpins when compared to wild-type activated human protein C. They also have longer half-lives in human blood and hence require either less frequent administration and/or smaller dosage than wild type human protein C for treating disorders.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      purpura, and hemolytic uremic syndrome, and also useful for treating thrombotic disorders and acute coronary syndromes such as myocardial infarction, unstable angina, and stroke. Protein C derivatives with amino acid substitutions result in increased resistance to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            coagulation, purpura fulminans, major trauma, major surgery, burns adult respiratory distress syndrome, transplantation, deep vein thrombosis, heparin induced thrombooytopenia, sickle cell disease, thalassemia, viral hemorrhagic fever, thrombotic thrombocytopenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The present invention relates to a human protein C derivative. The protein is useful for treating vascular occlusive disorders, hypercoagulable states such as sepsis, disseminated intravascular hypercoagulable states such as sepsis, disseminated intravascular
                                                                                                                                                                                                                                           (FARH ) HOECHST JAPAN
                                                                                                                                                                                                                                                                       21-APR-1987;
                                                                                                                                                                                                                                                                                                                            30-NOV-1988.
                                                                                                                                                                                                                                                                                                                                                                                  Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     16-SEP-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAP81104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 ANSFLXXLRHGSLXRXCIXXICDFXXAKXIFQNVDDTLAFWSKH 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 ansfleelrhsslerecieeicdfeeakeifqnvddtlafwskh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity 77.3 34; Conservative
                 Similarity
                                                                          460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        419 AA;
    Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                            plasmid pPC
                                                                                                  C is expressed (FERM P-9297).
                                                                                                                                             japanese
                 77.3%;
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77.3%;
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0;
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  Score 176; DB 9;
Pred. No. 2.4e-21;
0; Mismatches 10
                                                                                                                                                                        from new
                                                                                                                 in large amts. using plasmid pPC
                                                                                                                                                                       DNA of specified
    10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10;
                             Length 460;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               44
    Indels
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               419;
                                                                                                                                                                       base sequence
    0;
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    Gaps
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RESULT 13
AAR13538
ID AAR135
XX
AC AAR135
XX
DT 31-OCT
XX
DE Human
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                                                                                                                                                                                                                                                              RESULT 12
AAR13537
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                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 34; Conserv
                                                                                                                                                                                                                                                                                                                       Protein C Zymogen N comprises a signal peptide and propeptide of a gamma-carboxylated secreted protein, the light chain of HPC, a basi dipeptide (1.e. Lys-Arg, but can also be Arg-Lys, Lys-Lys or Arg-Arg) and amino acid residues 200-461 of HPC but with Ile(213) deleted and Asp(214) replaced by Asn. The zymogen can be activated in vivo by thrombin alone (even in the presence of calcium) and is more susceptible to activation by thrombin/thrombomodulin than native HPC zymogen. Zymogen N can be administered as a pro drug useful in prevention and treatment of diseases involving intravascular coagulation. It can also be given
                                                                                                                                                                                                                                                                                   to thrombocytopenic patients with invasive cancers effective and intensive chemotherapy. See also AAR13538-40 and AAR13623.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EP443875-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Key
 Human Protein C zymogen FN
                            31-OCT-1991
                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 23; Page 37-38; 67pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 thrombin-thrombomodulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Recombinant mutants of human protein C - having aminoacid changes for increased sensitivity to activation by thrombin and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 1991-254444/35.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gerlitz
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HPC mutant; pro drug; intravascular coagulation; zymogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human Protein C
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAR13537 standard;
                                                    AAR13538;
                                                                             AAR13538 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28-AUG-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAR13537;
                                                                                                                                           43 ansfleelrhsslerecieeicdfeeakeifqnvddtlafwskh 86
                                                                                                                                                      1 ANSFLXXLRHGSLXRXCIXXICDEXXAKXIFQNVDDTLAFWSKH 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BE, Grinnell
                                                                                                                                                                                                                                                             460 AA;
                                                                                                                                                                                             Conservative
                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             90US-0484133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        91EP-0301450
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                198..199
/label= Lys-Arg dipeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
198..199
                                                                             Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein;
                                                                                                                                                                                                         88.0%;
                                                                              460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              460
                                                                                                                                                                                             0
                                                                                                                                                                                                         Score 176; DB 12;
Pred. No. 2.4e-21;
                                                                                                                                                                                             Mismatches
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                                                                             B
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                                                                                                                                                                                                                      Length 460;
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RESULT 1
AAR13623
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                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
Matches 34; Conserv
                                                                                                                                                                                                                                                                                                                                                                                          protein C Zymogen FN comprises a signal peptide and propeptide of a gamma-carboxylated secreted protein, the light chain of HPC, a basi dipeptide (i.e. Lys-Arg, but can also be Arg-Lys, Lys-Lys or Arg-Arg) and amino acid residues 200-461 of HPC but with Ile(213) deleted, Asp(209) replaced by Phe and Asp(214) replaced by Asn. The zymogen can be activated in vivo by thrombin alone (even if the presence of calcium) and is more susceptible to activation by thrombomodulin than native HPC zymogen. Zymogen FN can be administered as a pro drug useful in prevention and treatment of diseases involving intravascular coagulation. It can also be given to thrombocytopenic patients with invasive cancers with effective and intensive chemotherapy. See AAR13537-40 and AAR13623.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gerlitz BE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Key
Region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HPC
                                                                                                                                      Human Protein
                                                                                                                                                                                                         AAR13623 standard; Protein; 460
                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 25;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Recombinant mutants of human for increased sensitivity to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 1991-254444/35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EP443875-A
                       28-AUG-1991.
                                            EP443875-A.
                                                                                        Key
                                                                                                               HPC mutant;
                                                                                                                                                             31-OCT-1991
                                                                                                                                                                                    AAR13623;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        thrombin-thrombomodulin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (ELIL ) ELI LILLY & CO
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22-FEB-1991;
                                                                             Region
                                                                                                                                                                                                                                                                   43
                                                                                                                                                                                                                                                                            1 ANSFLXXLRHGSLXRXCIXXICDFXXAKXIFQNVDDTLAFWSKH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mutant;
                                                                                                                                                                                                                                                                 ansfleeirhsslerecieeicdfeeakeifqnvddtlafwskh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Page 37-38;
                                                                                                                                                                                                                                                                                                                                                                         460 AA;
                                                                                                              pro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pro drug; intravascular coagulation; zymogen
                                                                                                                                                                                                                                                                                                                Conservative
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                                                                                                                                                           (first entry)
                                                                                                                                      C
91EP-0301450
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                                                                                                             drug; intravascular coagulation; zymogen
                                                                                                                                      zymogen
                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /label= Lys-Arg dipeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                          88.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              67pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BW;
                                                                                                                                      SC
                                                                 Lys-Arg dipeptide
                                                                                                                                                                                                                                                                                                                0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                English.
                                                                                                                                                                                                                                                                                                                           Score 176; DB 12;
Pred. No. 2.4e-21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein C - having aminoacid changes
activation by thrombin and
                                                                                                                                                                                                         AA
                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                10;
                                                                                                                                                                                                                                                                                                                                      Length 460;
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RESULT 1
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Best Local Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 dipeptide (i.e. Lys-Arg, but can also be Arg-Lys, Lys-Lys or Arg-Arg) and amino acid residues 200-461 of HPC but with Ile(213) deleted and with Asp(203), Gln(204), Glu(205), Asp(206), Val(208), Asp(209), Leu(212) and Asp(214) replaced by Leu, His, Lys, Leu, Thr, Tyr, Thr and Asn, respectively. The zymogen can be activated in vivo by thrombin alone (even in the presence of calcium) and is more susceptible to activation by thrombin/thrombomodulin than native HPC zymogen. Zymogen SC can be administered as a pro drug useful in prevention and treatment of diseases involving intravascular coagulation. It can also be given to thrombocytopenic patients with invasive cancers with effective and intensive chemotherapy. See also AAR13537-40.
          (PPLT-)
                                               13-JUN-1996;
30-NOV-1995;
                                                                                                             05-JUN-1997.
                                                                                                                                     WO9720043-A1
                                                                                                                                                                         Cleavage-site
                                                                                                                                                                                                                                                                          Human protein
                                                                                                                                                                                                                                                                                                                                                   AAW25086 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Recombinant mutants of human protein {\tt C} - having aminoacid changes for increased sensitivity to activation by thrombin and
                                                                                   26-NOV-1996;
                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                    11-DEC-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Protein C Zymogen SC comprises a signal peptide and propeptide gamma-carboxylated secreted protein, the light chain of HPC, a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Disclosure; Page 12 and Table 1; 67pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 1991-254444/35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             23-FEB-1990;
                                                                                                                                                                                                                                                   Protein C; transgenic animal; sheep; rabbit; cattle; goat; milk;
                                                                                                                                                                                                                                                                                                                             AAW25086;
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                                                                                                                                                                                                                                                                                                                                                                                                                 43
                                                                                                                                                                                                                                                                                                                                                                                                              PPL THERAPEUTICS. ZYMOGENETICS INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              460 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                   (first entry)
                                               96US-0019692.
95US-0565074.
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                                                                                   96WO-US18866
                                                                                                                                                                        Location/Qualifiers 199..200
                                                                                                                                                                                                                                     anticoagulant; human.
                                                                                                                                                              /note=
                                                                                                                                                                                                                                                                                                                                                   Protein; 460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             88.0%;
77.3%;
                                                                                                                                                              "two-chain cleavage site"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 176; DB 12;
Pred. No. 2.4e-21;
                                                                                                                                                                                                                                                                                                                                                   A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 460;
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basic
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                                                                                                                                                  Query Match
Best Local Similarity 77...
Matches 34; Conservative
                                                                                                                                                                                                                                                               This polypeptide comprises human protein C. A claimed method for producing recombinant human protein C in the milk of a transgenic animal involves: (a) providing a DNA construct comprising DNA encoding a secretion signal and a protein C propeptide, operably linked to DNA encoding two-chain cleavage site-modified protein C, the 2 DNA sequences being linked to elements required for protein C expression in a mammary gland of a host female animal; and (b) using the DNA construct to breed a transgenic animal (esp. sheep, rabbit, cattle, goat) that produces protein C in its milk, at least 90% of the protein C being in the two-chain form. Modification of the protein C two-chain cleavage site (see AAW25085) improves the maturation of recombinant protein C from single chain to two-chain form.
                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Disclosure; Page 58-60; 99pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Production of protein C in transgenic animal - useful quantity protein C production with therapeutic value
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cottingham I,
Sprecher CA,
                                                                                   43
                                                                                460 AA;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Foster DC,
                                                                                                                                                                  88.0%;
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                                                                                                                                                  Score 176; DB 18;
Pred. No. 2.4e-21;
0; Mismatches 10;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          useful for high
                                                                                                                                                                                   Length 460;
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0;